



**PERMIT to OPERATE No. 9112
and
PART 70 OPERATING PERMIT**

**NUEVO - SOUTH COUNTY OFFSHORE
PLATFORM C**

**PARCEL OCS-P-0241
DOS CUADRAS FIELD
SANTA BARBARA COUNTY, CALIFORNIA
OUTER CONTINENTAL SHELF**

OPERATOR

Torch Operating Company ("Torch")

OWNERSHIP

**Nuevo Energy Company
Aera Energy
Venoco**

**Santa Barbara County
Air Pollution Control District**

March 22, 2000 (APCD & Part 70 Operating Permit)

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ABBREVIATIONS/ACRONYMS

AP-42	USEPA's <i>Compilation of Emission Factors</i>
APCD	Santa Barbara County Air Pollution Control District
API	American Petroleum Institute
ASTM	American Society for Testing Materials
BACT	Best Available Control Technology
bpd	barrels per day (1 barrel = 42 gallons)
CAM	compliance assurance monitoring
CEMS	continuous emissions monitoring
dscf	dry standard cubic foot
EU	emission unit
°F	degree Fahrenheit
gal	gallon
gr	grain
HAP	hazardous air pollutant (as defined by CAAA, Section 112(b))
H ₂ S	hydrogen sulfide
I&M	inspection & maintenance
k	kilo (thousand)
l	liter
lb	pound
lbs/day	pounds per day
lbs/hr	pounds per hour
LACT	Lease Automatic Custody Transfer
LPG	liquid petroleum gas
M	mega (million)
MACT	Maximum Achievable Control Technology
MM	million
MW	molecular weight
NEI	net emissions increase
NG	natural gas
NSPS	New Source Performance Standards
O ₂	oxygen
OCS	outer continental shelf
ppm(vd or w)	parts per million (volume dry or weight)
psia	pounds per square inch absolute
psig	pounds per square inch gauge
PRD	pressure relief device
PTO	Permit to Operate
RACT	Reasonably Available Control Technology
ROC	reactive organic compounds, same as "VOC" as used in this permit
RVP	Reid vapor pressure
scf	standard cubic foot
scfd (or scfm)	standard cubic feet per day (or per minute)
SIP	State Implementation Plan
STP	standard temperature (60°F) and pressure (29.92 inches of mercury)
THC	Total hydrocarbons
tpy, TPY	tons per year
TVP	true vapor pressure
USEPA	United States Environmental Protection Agency
VE	visible emissions
VRS	vapor recovery system

1.0 Introduction

1.1 Purpose

General. The Santa Barbara County Air Pollution Control District (APCD) is responsible for implementing all applicable federal, state and local air pollution requirements which affect any stationary source of air pollution in

Santa Barbara County. The federal requirements include regulations listed in the Code of Federal Regulations: 40 CFR Parts 50, 51, 52, 55, 61, 63, 68, 70 and 82. The State regulations may be found in the California Health & Safety Code, Division 26, Section 39000 et seq. The applicable local regulations can be found in the APCD's Rules and Regulations.

The County is designated as an ozone nonattainment area for both the state and federal ambient air quality standards. The County is also designated a nonattainment area for the state PM₁₀ ambient air quality standard.

Part 70 Permitting. The issuance of this Part 70 permit to Platform C satisfies the permit issuance requirements of the APCD's Part 70 operating permit program. Platform C is a part of the *Nuevo - South County Offshore* stationary source (SSID = 8003), which is a major source for VOC¹, NO_x and CO. Conditions listed in this permit are based on federal, state or local rules and requirements. Sections 9.A, 9.B, and 9.C of this permit are enforceable by the APCD, the USEPA and the public since these sections are federally enforceable under Part 70. Where any reference contained in Sections 9.A, 9.B, or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. Conditions listed in Section 9.D are "APCD-only" enforceable.

Pursuant to the stated aims of Title V of the CAAA of 1990 (i.e., the Part 70 operating permit program), this permit has been designed to meet two objectives. First, compliance with all conditions in this permit would ensure compliance with all federally enforceable requirements for the facility. Next, the permit would be a comprehensive document to be used as a reference by Torch, the regulatory agencies, and the public to assess compliance.

1.2 Facility Overview

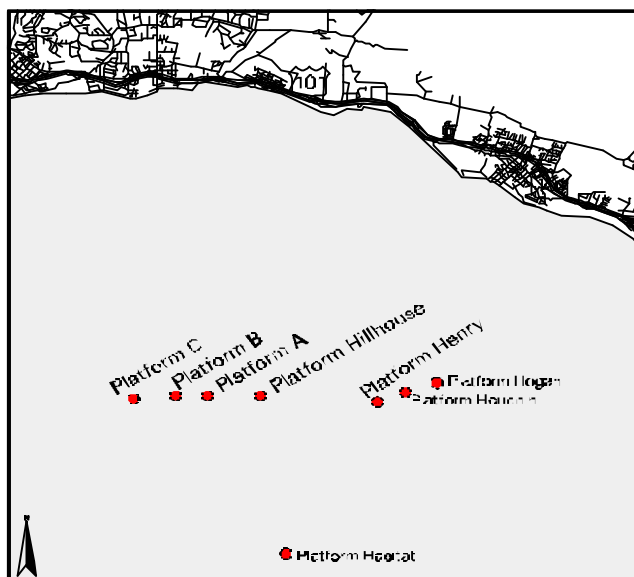
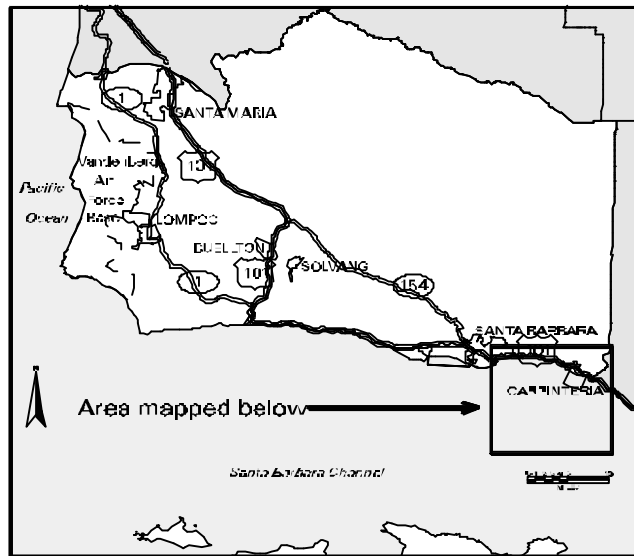
- 1.2.1 Facility Overview: Nuevo Energy Company ("Nuevo") is the principal owner and Torch Operating Company ("Torch") is the sole operator of Platform C, located on offshore lease tract OCS-P-0241, approximately six miles south-southeast from the City of Santa Barbara, California (Lambert Zone coordinates x = 979,355 feet, y = 804,781 feet). Platform C is owned by the following groups: Nuevo Energy 50%, Aera Energy 25% and Venoco 25%. For APCD regulatory purposes, the facility location is in the Southern Zone of Santa Barbara County². Figure 1.1 shows the relative location of Platform C off the Santa Barbara Coast.

Figure 1.1 Location Map for Platform C

Nuevo - South County (offshore)

¹ VOC as defined in Regulation XIII has the same meaning as reactive organic compounds as defined in Rule 102. The term ROC shall be used throughout the remainder of this document, but where used in the context of the Part 70 regulation, the reader shall interpret the term as VOC.

² APCD Rule 102, Definition: "Southern Zone"



Platform C (FID # 8006), a twelve leg, sixty well slot platform, was installed in a water depth of 190 feet in 1977; drilling operations began in 1977. Oil/water emulsion and sweet natural gas produced from the Platform C are transported via two sub-sea pipelines to Torch's Rincon facility in Ventura County for final processing. The average gravity and true vapor pressure of the produced crude oil is 24.6° API and 1.98 psia (at 85° F), respectively. The platform was initially designed to produce 5 million standard cubic feet per day (MMscfd) of gas and 15,000 barrels per day (bpd) of wet crude oil (oil/water emulsion); the present production rate is approximately 0.70 MMscfd of gas and approximately 2,100 bpd of oil emulsion.

The *Nuevo - South County Offshore* stationary source consists of the following 5 facilities:

- Platform A (FID=8003)
- Platform B (FID=8004)
- Platform C (FID=8006)
- Platform Hillhouse (FID=8005)
- Platform Henry (FID=8007)

Platform C consists of the following systems:

- Production wellhead and subsurface system
- Well cleanup system
- Test separation system
- Oil shipping, metering, and pipeline system
- Produced water system
- Low pressure compression system
- Gas compression system
- Gas shipping and metering system
- Electrical system
- Safety system
- Flare relief system

The oil and gas undergo initial separation to reduce water and sediment content prior to being shipped to the Rincon onshore facility. All equipment on Platform C, except two pedestal cranes and two emergency diesel-fired equipment, are powered by the SCE electric grid provided through a 34.5 kV sub-sea cable from shore.

- 1.2.2 Facility New Source Review/Permit Revisions Overview: Since the issuance of the initial operating permit on September 4, 1994, there have been two new source review/operating permit revisions along with two administrative permit amendments. These are:

ATC/PTO Mod 9112-01: This permit added condition No. 34 (Crew and Supply Boat Stationary Source Maximum Permitted Emissions and Operational Limits). The purpose was to redefine the stationary source's annual potential to emit, which is used to determine fees for Air Quality Plans pursuant to Rule 210 (a non-SIP rule). This permit was issued on 5/96.

Change of Ownership 9112-01/02: Two ownership change notices were approved. The first one was filed on 4/15/96 changing ownership from Unocal to Torch; and, the second one was filed on 4/21/97 changing ownership from Torch to Nuevo (*Torch remained as operator*).

ATC/PTO 9112-02: This revision allowed removal of the flotation cell from service and removing vapor recovery from the waste oil sump, the skimmer tank and the wastewater tank. The waste oil sump, the skimmer tank and the wastewater tank are exempt from ROC emissions control, per APCD SIP Rule 325.B.3. This permit was issued on 5/97.

ATC/PTO 10090: This permit authorizes Nuevo/Torch to replace the supply boat that serves OCS Platform C. There is no Net Emissions Increase associated with this project because the total emissions from the supply boat decrease. This permit was issued on 3/30/99.

ATC/PTO 10140: This permit authorizes Torch to change its pigging frequency at Platform C, and to revise the allowable boat fuel use. This permit was issued on 11/30/99

1.3 Emission Sources

Air pollution emissions from Platform C are the result of combustion sources, storage tanks and piping components, such as valves and flanges. Section 4 of the permit provides the APCD's engineering analysis of these emission sources. Section 5 of the permit describes the allowable emissions from each permitted emissions unit, the Platform as a whole, and also lists the potential emissions from non-permitted emission units.

The principal equipment components or activities that may cause the release of air contaminants from Platform C or from equipment used in support of Platform C operations are:

1. Crew boats used for personnel and cargo to and from the platform.
2. Supply boats used for transport of equipment, fuel, and supplies to and from the platform.
3. One North (25-ton) pedestal crane operated by a diesel internal combustion engine.
4. One South (15-ton) pedestal crane operated by a diesel internal combustion engine.
5. One standby diesel-fired generator that is operated in emergency situations.
6. One standby diesel-fired fire water pump that is operated in emergency situations.
6. Piping components, produced water tanks, and other evaporative sources that release fugitive hydrocarbons into the atmosphere.
7. Fugitive hydrocarbons that are emitted into the atmosphere from solvent use.
8. Flare relief system to combust hydrocarbon gases.

A list of all permitted equipment is provided in Section 10.6.

1.4 Emission Control Overview

Air quality emission controls are utilized on Platform C for a number of emission units to reduce air pollution emissions. Additionally, the use of onshore utility grid power allows Platform C to operate without large gas turbine-powered generators or compressors. The emission controls employed on the platform include:

- A Fugitive Hydrocarbon Inspection & Maintenance (I&M) program for detecting and repairing leaks of hydrocarbons from piping components, consistent with the requirements of Rule 331, to reduce ROC emissions by approximately 80 percent.
- Use of turbo-charging, inter-cooling and a cleaner burning engine with computer-controlled injectors on supply boat main engines to achieve a NO_x emissions rate of 5.48 g/bhp-hr.
- Use of turbo-charging, inter-cooling, and 4° injection timing retard on the crew boat main engines to achieve a NO_x emissions rate of 8.4 g/bhp-hr.
- Use of Type "B" diesel fuel injectors on both the South (15-ton) and North (25-ton) pedestal crane engines; this allows the North crane engine to achieve NO_x emissions of 8.4 g/bhp-hr, consistent with the Rule 333 limit.
- Use of a flare relief system to combust hydrocarbon gases that would otherwise be released directly to the atmosphere.

1.5 Offsets/Emission Reduction Credit Overview

This facility does not require emission offsets nor does it provide emission reduction credits.

1.6 Part 70 Operating Permit Overview

- 1.6.1 Permit Life and Federally-enforceable Requirements: The Part 70 permit expires five years from the date of issuance, with an application required to be submitted for renewal. All federally enforceable requirements are listed in 40 CFR Part 70.2 (*Definitions*) under "applicable requirements." These include all SIP-approved APCD Rules, all conditions in the APCD-issued Authority to Construct permits, and all conditions applicable to major sources under federally promulgated rules and regulations. All permits (and conditions therein) issued pursuant to the OCS Air Regulation are federally enforceable. All these requirements are enforceable by the public under CAAA (see Tables 3.1 and 3.2 for the list of federally enforceable requirements).
- 1.6.2 Insignificant Emissions Units (IEU): Equipment or activities exempted from permitting under APCD Rule 202 are considered as insignificant emissions units. The guidance under the USEPA's White Paper II, Sections C.2.c and C.2.d applies to insignificant emissions units (*See Attachment 10.7 for the Insignificant Emissions Unit list*).
- 1.6.3 Federal Potential to Emit: The federal potential to emit (PTE) of a stationary source does not include fugitive emissions of any pollutant unless the source is: (1) subject to a federal NSPS/NESHAP requirement, or (2) included in the 29-category source list specified in 40 CFR 51.166 or 52.21. Platform C is not subject to any NSPS or NESHAP; thus, its fugitive emissions are not included in its federal PTE. The federal PTE does include all emissions from any insignificant emissions units. (*See Section 5.4 for the federal PTE for this source*)
- 1.6.4 Permit Shield: The operator of a major source may be granted a shield: (a) specifically stipulating any federally-enforceable conditions that are no longer applicable to the source and (b) stating the reasons for such non-applicability. The permit shield must be based on a request from the source and its detailed review by the APCD. Permit shields cannot be granted indiscriminately with respect to all federal requirements. Torch has not made a request for a permit shield.
- 1.6.5 Alternate Operating Scenarios: A major source may be permitted to operate under different operating scenarios, if appropriate descriptions of such scenarios are included in its Part 70 permit application and if such operations are allowed under federally-enforceable rules. Torch made no request for permitted alternative operating scenarios.

- 1.6.6 Compliance Certification: Part 70 permit holders must certify compliance with all applicable federally enforceable requirements including permit conditions. Such certification must accompany each Part 70 permit application; and, be re-submitted annually on or before March 1st or on a more frequent schedule specified in the permit. Each certification is signed by a “responsible official” of the owner/operator company whose name and address is listed prominently in the Part 70 permit (*see Section 1.6.9 below*).
- 1.6.7 Permit Reopening: Part 70 permits are re-opened and revised if the source becomes subject to a new rule or new permit conditions are necessary to ensure compliance with existing rules. The permits are also re-opened if they contain a material mistake or the emission limitations or other conditions are based on inaccurate permit application data. This Part 70 permit may be re-opened to address the USEPA's new compliance assurance monitoring (CAM) rules, if the permit is revised significantly prior to its first expiration date (see Section 4.10.3, CAM Rule).
- 1.6.8 Hazardous Air Pollutants (HAPs): Part 70 permits also regulate emission of HAPs from major sources through the imposition of maximum achievable control technology (MACT), where applicable. However, based on CAAA, Section 112 (n) (4) stipulations, HAP emissions from any equipment **at this facility** cannot be aggregated with HAP emissions from other similar units at the facility (*or aggregated for any purposes*); hence, HAPs, including any lease-wide HAP emissions computations, are not addressed in this permit.
- 1.6.9 Responsible Official: The designated responsible official and their mailing address is:

**Mr. Phil Sorbet, California Assistant Manager and
Mr. Gary Grove, District Exploitation Manager
Nuevo Energy Company
201 South Broadway
Orcutt, California 93455**

2.0 Process Description

2.1 Process Summary

- 2.1.0 **Process Summary:** Platform C is an oil and gas production platform. Production equipment on the platform consists of oil and gas separators, a free water knockout unit, a glycol dehydration unit, gas compressors, dehydration units, water treating equipment, oil shipping pumps, and a flare relief system. The crude oil and natural gas produced are sweet and have minimal concentrations of H₂S and mercaptans.

Crude oil and natural gas are shipped through separate sub-sea pipelines: first to Platform B and then to Platform A, and finally to the Rincon onshore plant in Ventura County for final processing.

Produced water treating equipment also located on the platform. In addition to produced water from the platform's wells, moderate pressure produced water is received from Platform B. Treated produced water is either reinjected into the well formations through five water injection wells or is discharged into the ocean at a depth of 143 ft, in accordance with an existing NPDES (National Pollutant Discharge Elimination System) permit.

- 2.1.1 **Production:** Platform C has 60 well slots located in three well rooms. There are currently 35 wells on Platform C. Twenty-nine (29) are producing wells. Additionally, there are six (6) water injection wells. Torch drilled an additional well in 1997. The wells are not free flowing; submersible pumps or hydraulic rod pumps have been installed in all wells to assist in production. Platform C has a design production rate of 15,000 bpd of crude oil and 5 MMscfd of gas. Crude oil and natural gas are metered at the inlet of the two separate sub-sea pipelines.

The oil production flow line from each wellhead ties into three separate piping manifolds, or headers. These three manifolds are the gross oil header, the test oil header, and the well clean header. Normally, the flow from each well enters the gross oil header; two gross oil headers are provided for well room No. 1, which contains 42 of the 60 well slots on the platform. The gross oil headers are piped to the gross oil separator No. 1 (MBD-101). There are two separate test headers, one for well room No. 1 and for well rooms No. 2 and No. 3.

From the gross oil separator, the crude oil flows to the free water knockout (MAM-121). Oil separated in the free water knockout flows to the oil shipping surge tank (MBJ-131) and is then pumped into the sub-sea pipeline to Platform B, on to Platform A, and then on to the Rincon onshore facility. A turbine meter at the pipeline inlet measures the oil flow rate and totals the amount of oil produced on Platform C. The produced water removed in the free water knockout is discharged in the ocean.

Two test separators (MBD-111 and MBD-112) are used to flow test the individual production wells. For the flow test, the well is switched from the production header to the test header. Only one well is tested at a time in each test separator. Oil from the test separators is commingled with oil from the gross oil separators in the free water knockout tank. The well clean header and well clean tank (MBF-201) are used to start-up a well after testing or work over activities are completed. For the first few hours when a well is brought back on line, gas surges and contamination from drilling fluids or reservoir sand can occur. After the flow rate stabilizes and any drilling fluids are removed, the well is switched to the production header and separator.

- 2.1.2 **Gas, Oil, and Water Separation:** Fluid from the production wells is a mixture of oil, gas, and water. The separation of the liquid and gas streams is accomplished in the gross oil separator (MBD-101), which is a horizontal two-phase separator 6' in diameter by 16' 8" seam-to-seam length. Wells are produced directly into the gross oil separator, which has a capacity of 15,000 bpd of crude oil and 10 MMscfd of natural gas.

The gross oil separator operates at 35 psig and 100°F. The gas section (top half) of the separator is designed to sufficiently reduce the velocity of the gas to cause any liquid to drop out. The separator also has a mist extractor to promote removal of liquid droplets from the gas stream. Operating pressure of the separator is automatically

controlled by a pressure control valve in the gas outlet line. Gas from the gross oil separator flows to the main gas scrubber before being compressed by the Sullair main gas compressor.

The liquid section (bottom half) of the gross oil separator is designed with sufficient retention time to allow any entrained gas to bubble off from the liquid. The liquid section is not large enough, however, to allow complete separation of the oil and water into two separate streams. Liquid level in the separator is controlled by a level control valve. Oil and water discharged from the gross oil separator flows to the free water knockout.

The free water knockout is used to reduce the water cut (*i.e.*, water concentration) of the crude oil; oil and water separation in the free water knockout takes place through gravity separation. The water cut of the crude oil leaving the free water knockout is controlled at approximately 10 percent. Produced water from the free water knockout is discharged to the ocean by way of the cutting chutes; a turbine meter measures the amount of water. The separated oil flows to the oil shipping surge tank. The oil flow rate is measured by a turbine meter. Oil and water levels in the free water knockout are controlled independently by separate level controllers.

Treated high pressure water is received from Platform B through a 6" sub-sea pipeline. The water is filtered and metered and then disposed of via the injection wells.

- 2.1.3 *Well Testing and Maintenance*: To measure the oil, gas, and water flow rates from a well, the well is produced into either test separator No. 1 or No. 2 (MBD-11 and MBD-112) by closing the well flowline valve to the gross oil header and opening the well flowline valve to the test header. The test separator is a vertical two-phase separator, 3'5" in diameter by 20'4" seam-to-seam height, with a capacity of 5,000 bpd crude oil and 5 MMscfd of natural gas; its capacity is smaller than the gross oil separator since only one well is tested at a time. The test separators have a mist extractor to promote removal of liquid droplets from the gas stream, and each separator has a pressure control valve to maintain operating pressure at 60 psig. Gas separated in each test separator is measured by an orifice meter in the outlet line and is commingled with the gas from the gross oil separator

The liquid from the test separators is measured by a turbine meter which measures the total liquid flow of the combined oil and water stream. The water cut is determined by collection and analysis of samples. Oil and water from the test separators is combined with oil and water from the gross oil separator and then processed in the free water knockout.

Two 500 bbl. portable tanks are located on the platform on an as needed basis. They are used for the following activities: stimulating a well, changing a well pump, drilling operations, tank cleaning, and other related maintenance activities. The portable tanks are not used for primary separation or storage of crude oil.

- 2.1.4 *Emulsion Breaking and Crude Oil Storage*: There are no emulsion breaking or crude oil storage facilities on Platform C. The produced oil/water emulsion is shipped to the Rincon onshore facility for final processing.
- 2.1.5 *Emulsion Shipping*: The oil shipping surge tank (MBJ-131) receives oil from the free water knockout and from the skimmer tank via the waste oil pumps; it is a vertical pressure vessel 6' in diameter by 16' seam-to-seam height operating at 12-14 psig. The tank provides surge capacity to stabilize the flow of oil and allow the shipping pumps to operate continuously. Oil is pumped from the tank by one of three oil shipping pumps; the pump flow rate is controlled by a level controller that modulates a control valve in the pump discharge line, thereby maintaining the level in the oil shipping surge tank within an acceptable operating range. The oil shipping pumps discharge into the six inch sub-sea pipeline to Platform B; the oil flow rate to the pipeline is measured by a turbine meter.
- 2.1.6 *Drain Sumps*: The well clean tank (MBF-201) was originally designed to receive oil contaminated with sediment or drilling mud after a well work over is completed. Contaminated oil production rarely occurs, and, as a result, the well clean tank can also operate as a scrubber for the gas from the oil shipping surge tank.

The skimmer tank (ABJ-441) receives oil skimming, water from the platform deck drains is collected in the wastewater tank (ABJ-431). Well room and vessel drains are routed to the waste oil tank (ABJ-451). Oily waste collected in the wastewater tank is pumped to the oil surge tank or boat landing. Oil from the skimmer tank is pumped by the waste oil pumps (PBA-442A, B) to the oil shipping surge tank (MBJ-131). Natural gas from the tanks is gathered by the flotation deck vapor recovery compressor (CBA-291) and routed to the well clean tank. A vacuum truck is periodically transported to the platform on the supply boat to remove solids from the wastewater tank and/or the skimmer tank.

- 2.1.7 *Gas Compression, Dehydration, and Disposition:* Natural gas from the well rooms, oil shipping surge tank, and the flotation deck vapor recovery compressor are commingled in the well clean tank (MBF-201). Gas from the well clean tank is commingled with natural gas that is removed from the crude oil in the gross oil separator, test separators, and free water knockout and is compressed, dehydrated, and shipped to Platform B, and then to the Rincon onshore facility in a 6" sub-sea pipeline.

Natural gas from the gross oil separator, test separators, free water knockout, well rooms, oil shipping surge tank, and the flotation deck vapor recovery compressor flows to the main gas scrubber (MBF-211) for liquid removal and is then compressed by the Sullair main gas compressor (CBA-225) to 75 psig. The discharge from the compressor is cooled by a fin fan cooler (HBA-228); any condensed liquid is removed in the liquid knockout vessel (MBF-231), and the wet gas then flows to the gas chiller (HBA-601).

The gas dehydration system is used to lower the water content of the gas to the sales gas pipeline requirement. It consists of the gas chiller, refrigerant compressor (CBA-611), refrigerant condenser (HBA-621), and refrigerant surge drum (MBJ-631). The gas chiller is a heat exchanger in which liquid refrigerant is used to cool the natural gas and cause condensation of most of the entrained water. After chilling, the gas flows to the final gas scrubber (MBF-261) where the condensed water and hydrocarbon liquids are removed. Dehydrated gas from the final gas scrubber flows directly to the 6" sub-sea pipeline to Platform B; an orifice meter records the gas flow rate from Platform C.

- 2.1.8 *Gas Sweetening and Sulfur Recovery:* The gas produced from Platform C is sweet gas. There are no gas sweetening or sulfur recovery facilities on Platform C.

- 2.1.9 *Vapor Recovery Systems:* Gas from the waste water, skimmer, and waste oil tanks is compressed by the flotation deck vapor recovery compressor (CBA-291) and is discharged to the well clean tank (which also receives gas from the oil shipping surge tank). Entrained liquids from the gas streams are removed in the well clean tank; the gas then flows to the main gas scrubber where it is commingled with the gas from the gross oil separator, test separators, and free water knockout.

Pressure relief valves on pressure vessels, compressors, and other equipment handling hydrocarbon liquids or vapors all discharge to a ten-inch relief header. The pressure relief valves only open during emergency situations or required safety testing. The relief header flows into the flare gas scrubber which removes any liquid discharged from the pressure relief valves. A back pressure control valve on the gas gathering header can also release natural gas to the flare gas scrubber. This control valve will only release gas if the AC main gas compressors have a mechanical failure or the gas pipeline to shore is shut-in. Gas from the flare scrubber goes to the platform flare stack, while liquid flows to the waste water tank.

- 2.1.10 *Fuel Gas System:* Platform C does not have an operational fuel gas system; the former fuel gas system is out of service. There is no gas-fired equipment such as turbines or heaters on the platform. Platform C is equipped with two 3,200 gallon diesel storage tanks, one located in each of the crane pedestals. Diesel fuel # 2 is used by the two pedestal cranes and emergency equipment. The fuel contains less than 0.5 percent sulfur by weight.

2.1.11 *Flare Relief System:* Platform C is equipped with a flare system to minimize emissions of ROCs that would otherwise be emitted to the atmosphere.

2.1.11.1 *Flare System Design:* The flare system receives gas from relief valves and piping vents which are first routed to the flare header. The equipment connected to the flare header are as follows:

- Gross oil separator (MBD-101)
- Test separators (MBD-111 and 112)
- Free water knockout (MAM-121)
- Oil shipping surge tank (MBJ-131)
- Well clean tank (MBF-201)
- Man gas scrubber (MBF-211)
- Final gas scrubber (MBF-261)
- AC main gas compressor (CBA-225)
- Refrigerant compressor (CBA-611)
- Flotation deck vapor recovery compressor (CBA-291)

All gas collected in the flare header is routed to the flare boom and on to the flare tip where it is burned. A Daniels ten-inch orifice meter is used to measure and record the gas that is flared. Its range of operation is 0.012 MMscfd minimum to 10 MMscfd maximum.

2.1.11.2 *Planned Flaring Events:* Flaring emissions to the atmosphere are due to both planned and unplanned events. Planned events include (but are not limited to):

- pipeline pigging operations
- compressor shutdowns/startups for routine maintenance
- well casing blow downs during workover and rig operations
- new well unloading and cleanup
- clearing of gas lines during equipment or process turnarounds
- episodic events such as equipment depressurization for maintenance, purging of vessels and gas pipeline blowdowns
- MMS ordered safety tests

2.1.11.3 *Unplanned Flaring Events:* Unplanned flaring events are defined as all flaring that does not meet the definition of planned flaring under Rule 359. Unplanned or emergency events include, but are not limited to, the following:

- emergency shutdowns caused by safety devices
- well surges during drilling or production
- unintentional pressure safety valve releases
- processing equipment or compressor failures
- onshore facility failures that affect platform operations
- faulty-sensor caused shutdowns
- high/low temperature and pressure indicated shutdowns
- electrical equipment failures and power failure
- pipeline failures
- earthquakes or other unforeseeable emergency events

2.2 Support Systems

2.2.1 *Piping Assemblies and Pipelines:* The piping on Platform C is designed, tested, and installed in general accordance with API 14C and 14E. Three pipelines are associated with the platform: a 6-inch oil and a 6-inch gas line to Platform B; additionally, a 6-inch pipeline transports wastewater from Platform B.

- 2.2.2 *Power Generation:* Electrical power for Platform C is provided from shore by Southern California Edison through a 34.5 kV subsea cable. The platform has a ~~500~~ 200 kW diesel stand-by generator which is used in the event of a power outage from Southern California Edison. During such a power failure, the Motor Control Center (MCC) on Platform C supplies standby power from the diesel generator to critical equipment. A 24-volt battery backup system is provided for the essential platform controls.
- 2.2.3 *Crew Boats:* Torch uses one crew boat for crew and light supply transport in support of Platform C. The crew boat makes four round trips per day, seven days a week, to the platform from Casitas Pier in Carpinteria. The crew boat is shared with Torch's Platforms A, B, Henry, and Hillhouse and Habitat.
- 2.2.4 *Supply Boats:* Torch uses one supply boat for supply and equipment transport in support of Platform C. When the platform is in a production mode (i.e., no drilling or well repair), the supply boat activity is approximately 1-2 trips per month. During well drilling or well repair activity, the supply-boat activity increases to about one trip every five days. The supply boat, based in Port Hueneme, also services Platform's Henry, Hillhouse, Habitat, A, B, Gina, Gilda, and Irene.
- 2.2.5 *Helicopter:* There is a helipad on Platform C, but helicopters are not used for routine offshore transportation.
- 2.2.6 *Emergency Response Drills:* Torch conducts periodic and unannounced emergency response drills. Several plans have been developed for different types of emergency situations that could occur on or around the platform. The plans include the Emergency Evacuation Plan and Oil Spill Contingency Plan. All of the plans have been prepared to comply with applicable rules and regulations and guidelines set forth by the appropriate regulatory agencies. In addition, the following drills are practiced by the entire crew on a regular basis: (1) man overboard, (2) combustible gas, (3) abandon platform, (4) emergency shut down, and (5) fire drills.

2.3 Drilling Activities

- 2.3.1 *Drilling Program:* There have been several drilling programs conducted on Platform C. Drilling began in 1977 and ceased after 34 wells were drilled. Platform C has a resident electric drilling rig, which is used for drilling oil-gas production wells. Currently, there are no plans to resume activities with another drilling program.
- 2.3.2 *Well Workover Program:* The resident electric drilling rig is used for servicing wells. Well workover programs have been conducted in the past on Platform C and may likely occur in the future.

2.4 Maintenance/Degreasing Activities

- 2.4.1 *Paints and Coatings:* Maintenance painting on Platform C is conducted on an intermittent basis. Normally only touchup and equipment labeling or tagging is done with cans of spray paint.
- 2.4.2 *Solvent Usage:* Solvents not used for surface coating thinning may be used on the platform for daily operations. Usage includes cold solvent degreasing and wipe cleaning with rags.

2.5 *Planned Process Turnarounds*

Process turnarounds on platform equipment are scheduled to occur when the onshore receiving facilities are required to shut down for maintenance. There are approximately one or two turnarounds per year, each of which lasts from two to three days. Major pieces of equipment such as gas compressors undergo maintenance as specified by the manufacturer. Maintenance of critical components is carried out according to the requirements of Rule 331 {Fugitive Emissions Inspection and Maintenance}. The emissions from planned process turnarounds are incorporated in the emissions category for planned flaring.

2.6 *Other Processes*

- 2.6.1 *Pigging*: Two (2) pig launchers, gas and oil, are installed at Platform C. Pigging operations (launching) occur between this platform and Platform B. Both lines are pigged at least three times a week. All pig launchers are connected both to the blanket gas system and to the platform's vapor recovery system. This ensures an ROC removal efficiency of 90 percent and a low ROC/TOC ratio (= 0.19).
- 2.6.2 Torch has stated that no other processes exist that would be subject to permit.

2.7 *Detailed Process Equipment Listing*

Refer to the tables in Attachment 10.6 for a complete listing of all permitted emission units. Permit-exempt emission units are specifically listed in Table 10.7

3.0 Regulatory Review

This Section identifies the federal, state and local rules and regulations applicable to Platform C.

3.1 Rule Exemptions Claimed

- ☐ APCD Rule 202 (*Exemptions to Rule 201*): Torch has requested a number of exemptions under this rule. An exemption from permit, however, does not necessarily grant relief from any applicable prohibitory rule. The following exemptions were approved by the APCD:

Section 202.F.1.e for an electrical generator driven by a diesel-fired piston internal combustion engine rated at 21.6 bhp and for a firewater pump driven by a diesel-fired piston internal combustion engine rated at 85 bhp.

Section 202.V.2 for two diesel fuel #2 storage tanks, with 3,200 gallons capacity.

Section D.6 (*De Minimis Exemption*). Torch has documented one (1) de minimis project (well C-1 installation) that has resulted in an increase of 2.09_lb./day of ROC emissions for Platform C (re: Torch's December 19, 1997 letter to the APCD). This increase is below the 2.4 lb/day exemption threshold; and, the aggregate for the stationary source is below the 24 lb/day exemption threshold.

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- Section D.8 for routine repair or maintenance of permitted equipment.
-
- Section D.14 for application of architectural coating in the repair and maintenance of a stationary structure.
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- Section U.3 for wipe cleaning using solvents as long as the solvents meet other applicable requirements and the use does not exceed 55 gallons/year.
-
- Section D.5 for temporary equipment (*a written request to the APCD is required*).
-
- Section F.6 for drilling equipment at the platform provided emissions are less than 25 tons in a consecutive 12 month period.

- ☐ APCD Rule 331 (*Fugitive Emissions Inspection and Maintenance*): The following exemptions were applied for and approved by the APCD:

-
- Section B.2.b for components buried below the ground.
-
- Section B.2.c for one-half inch or smaller stainless steel tube fittings.
-
- Section B.3.b for components handling liquids or gases with ROC concentrations less than 10 percent by weight.

- ☐ APCD Rule 333 (*Control of Emissions from Reciprocating Internal Combustion Engines*): Under Section B.1.b, engines exempt per Rule 202 are also exempt from the

requirements of this rule. Therefore, the power generator and the firewater pump listed above under the Rule 202 exemption are not required to comply with Rule 333. Furthermore, the south pedestal crane (15-ton), driven by a diesel-fired piston internal combustion engine rated at 109 bhp, is exempted per Section 333.B.2 (less than 200 hours per year of operation) from Sections D (emission limits), E (engine inspections), F (compliance plan) and G (testing).

3.2 Compliance with Applicable Federal Rules and Regulations

- 3.2.1 40 CFR Parts 51/52 {New Source Review (Nonattainment Area Review and Prevention of Significant Deterioration)}: Platform C was constructed and permitted prior to the applicability of these regulations. However, all permit modifications after September 4, 1992 are subject to APCD NSR requirements. [Note: Some equipment installed after September 4, 1992 were identified earlier in the OCS Compliance Plans, and thus were not subject to NSR requirements] Compliance with APCD Regulation VIII (New Source Review), ensures that future modifications to the facility will comply with these regulations.
- 3.2.2 40 CFR Part 55 {OCS Air Regulation}: Torch is operating Platform C in compliance with the requirements of this regulation.
- 3.2.3 40 CFR Part 60 {New Source Performance Standards}: None of the equipment in this permit are subject to NSPS requirements.
- 3.2.4 40 CFR Part 61 {NESHAP}: None of the equipment in this permit are subject to NESHAP requirements.
- 3.2.5 40 CFR 63 {MACT}: This facility will submit to the USEPA its 'Notice of Applicability' of 40 CFR 63: Subpart HH, (Oil & Gas Production MACT), prior to June 17, 2000; and, will comply with the Subpart requirements, if applicable, by June 17, 2002.
- 3.2.6 40 CFR Part 64 {Compliance Assurance Monitoring}: This rule became effective on April 22, 1998. Compliance with this rule is not required until the next Part 70 permit renewal or significant permit revision.
- 3.2.7 40 CFR Part 70 {Operating Permits}: This Subpart is applicable to Platform C. Table 3.1 lists the federally enforceable APCD promulgated rules that are "generic" and apply to Platform C. Table 3.2 lists the federally enforceable APCD promulgated rules that are "unit-specific." These tables are based on data available from the APCD's administrative files and from Torch's Part 70 Operating Permit application No. 9646. Table 3.4 includes the adoption dates of these rules.

In its Part 70 permit application 9646 (Forms I and J), Torch certified compliance with all existing APCD rules and permit conditions. This certification is also required of Torch annually. In addition, Torch's certified compliance statement, outlined in Form I, forms a part of this permit (see also Section 9.A of this permit). The plan is included in Section 10.5 of this permit. Issuance of this permit and compliance with all its terms and conditions will ensure that Torch complies with the provisions of all applicable Subparts.

3.3 Compliance with Applicable State Rules and Regulations

- 3.3.1 Division 26, Air Resources {California Health & Safety Code}: The administrative provisions of the Health & Safety Code apply to this facility and will be enforced by the APCD. These provisions are APCD-enforceable only.
- 3.3.2 California Administrative Code Title 17: These sections specify the standards by which abrasive blasting activities are governed throughout the State. All abrasive blasting activities at Platform C are required to conform to these standards. Compliance will be assessed through onsite inspections. These standards are APCD-enforceable only. However, CAC Title 17 does not preempt enforcement of any SIP-approved rule that may be applicable to abrasive blasting activities.

3.4 Compliance with Applicable Local Rules and Regulations

- 3.4.1 Applicability Tables: In addition to Tables 3.1 and 3.2, Table 3.3 lists the non-federally enforceable APCD promulgated rules that apply to Platform C. Table 3.4 lists the adoption dates of all rules applicable to this permit at the date of this permit's issuance.
- 3.4.2 Rules Requiring Further Discussion: The last facility inspections occurred on September 9, 1999. The inspector reported that the facility was in compliance with all APCD rules and PTO conditions. This section provides a more detailed discussion regarding the applicability and compliance of certain rules.

The following is a rule-by-rule evaluation of compliance for Platform C:

Rule 301 - Circumvention: This rule prohibits the concealment of any activity that would otherwise constitute a violation of Division 26 (Air Resources) of the California H&SC and the SBCAPCD rules and regulations. To the best of the APCD's knowledge, Torch is operating in compliance with this rule.

Rule 302 - Visible Emissions: This rule prohibits the discharge from any single emissions unit any air contaminants for period or periods aggregating more than three minutes in any one hour which is as dark or darker in shade than a reading of 1 on the Ringelmann Chart or of such opacity to obscure an observer's view to a degree equal to or greater than a reading of 1 on the Ringelmann Chart. Sources subject to this rule include the flare and all diesel-fired piston internal combustion engines on the platform. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules.

Rule 305 - Particulate Matter, Southern Zone: Platform C is considered a Southern Zone source. This rule prohibits the discharge into the atmosphere from any source particulate matter in excess of specified concentrations measured in gr/scf. The maximum allowable concentrations are determined as a function of volumetric discharge, measured in scfm, and are listed in Table 305(a) of the rule. Sources subject to this rule include the flare and all diesel-fired IC engines on the platform. Improperly maintained diesel engines have the potential to violate this rule. Compliance will be assured by requiring all engines to be maintained according to manufacturer maintenance schedules. Rule 359 addresses the need for the flare to operate in a smokeless fashion.

Rule 309 - Specific Contaminants: Under Section "A", no source may discharge sulfur compounds and combustion contaminants in excess of 0.2 percent as SO₂ (by volume) and 0.1 gr/scf (at 12% CO₂) respectively. Sulfur emissions due to flaring of sweet gas (*less than 4 ppmV S*) at Platform C will comply with the SO₂ limit. All diesel powered piston IC engines have the potential to exceed the combustion contaminant limit if not properly maintained (see discussion on Rule 305 above for compliance).

Rule 310 - Odorous Organic Compounds: This rule prohibits the discharge of H₂S and organic sulfides that result in a ground level impact beyond the property boundary in excess of 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour. No measured data exists to confirm compliance with this rule; however, all produced gas from Platform C is sweet (*less than 4 ppmv S*). As a result, it is expected that compliance with this rule will be achieved.

Rule 311 - Sulfur Content of Fuels: This rule limits the sulfur content of fuels combusted on Platform C to 0.5 percent (by weight) for liquids fuels and 15 gr/100 scf (calculated as H₂S) {or 239 ppmvd} for gaseous fuels. All piston IC engines on the platform and on the crew and supply boats are expected to be in compliance with the liquid fuel limit as determined by fuel analysis documentation. The flare relief system is not subject to this rule (see discussion under Rule 359).

Rule 317 - Organic Solvents: This rule sets specific prohibitions against the discharge of emissions of both photochemically and non-photochemically reactive organic solvents (40 lbs./day and 3,000 lbs./day respectively). Solvents may be used on the platform during normal operations for degreasing by wipe cleaning and for use in paints and coatings in maintenance operations. There is the potential to exceed the limits under Section B.2 during significant surface coating activities. Torch will be required to maintain records to ensure compliance with this rule.

Rule 322 - Metal Surface Coating Thinner and Reducer: This rule prohibits the use of photochemically reactive solvents for use as thinners or reducers in metal surface coatings. Torch will be required to maintain records during maintenance operations to ensure compliance with this rule.

Rule 323 - Architectural Coatings: This rule sets standards for the application of surface coatings. The primary coating standard that will apply to the platform is for Industrial Maintenance Coatings which has a limit of 340 gram ROC per liter of coating, as applied. Torch will be required to comply with the Administrative requirements under Section F for each container on the platform.

Rule 324 - Disposal and Evaporation of Solvents: This rule prohibits any source from disposing more than one and a half gallons of any photochemically reactive solvent per day by means that will allow the evaporation of the solvent into the atmosphere. Torch will be required to maintain records to ensure compliance with this rule.

Rule 325 - Crude Oil Production and Separation: This rule applies to equipment used in the production, gathering, storage, processing and separation of crude oil and gas prior to custody transfer. The primary requirements of this rule are under Sections D and E. Section D requires the use of vapor recovery systems on all tanks and vessels, including wastewater tanks, oil/water

separators, waste oil tanks/sumps, and skimmer tanks. Section E requires that all produced gas be controlled at all times, except for wells undergoing routine maintenance. With the exception of the two portable tanks, production and test vessels and tanks, the waste oil sump, the skimmer tank and the wastewater tank, all tanks are connected to gas gathering systems and all relief valves are connected to the flare relief system. Also, Torch has installed vapor recovery units on all equipment subject to this rule. Torch has stated that the two portable (Baker) tanks are exempted from Rule 325 per Section B.1.b; however this exemption only applies to new wells drilled and not existing wells. Also, the waste oil sump, the skimmer tank and the wastewater tank are exempt from control per APCD Rule 325.B.3. Compliance with this exemption will be verified by APCD inspections. Compliance with Section E is met by directing all produced gas to a sales compressor, injection well or to the flare relief system.

Rule 330 - Surface Coating of Metal Parts and Products: This rule sets standards for many types of coatings applied to metal parts and products. In addition to the ROC standards, this rule sets operating standards for application of the coatings, labeling and recordkeeping.

Rule 331 - Fugitive Emissions Inspection and Maintenance: This rule applies to components in liquid and gaseous hydrocarbon service at oil and gas production fields. Torch has submitted an I&M Plan and received APCD approval of this Plan on July 26, 1994. Ongoing compliance with the many provisions of this rule will be assessed via platform inspection by APCD personnel using an organic vapor analyzer and through analysis of operator records. Platform C does not perform any routine venting of hydrocarbons to the atmosphere. All gases routinely vented are directed to the flare relief system or vapor recovery system.

Rule 333 - Control of Emissions from Reciprocating Internal Combustion Engines: This rule applies to all engines with a rated brake horsepower of 50 or greater that are fueled by liquid or gaseous fuels. However, per Section B.1.b, the emergency generator and the emergency firewater pump engine are exempt from the requirement to obtain a permit under Rule 202; thus, they are also exempt from this rule (see Section 3.1 above). Furthermore, the South (15-ton) pedestal crane engine is exempt from Sections D, E, F, and G of the Rule per Section 333.B.2. The North (25-ton) diesel-fired pedestal crane engine on Platform C is subject to the NO_x standards under Section D.4 of 8.4 g/bhp-hr or 796 ppmvd (at 15% O₂). Ongoing compliance will be achieved through implementation of the APCD-approved Maintenance Plan (submitted on June 3, 1994 and approved on June 10, 1994) required under Section E and through biennial source testing (source test on August 23, 1998 showed compliance).

Rule 359 - Flares and Thermal Oxidizers: This rule applies to flares for both planned and unplanned flaring events. Compliance with this rule has been documented. A detailed review of compliance issues is as follows:

D.1 - Sulfur Content in Gaseous Fuels: Part (a) limits the total sulfur content of all planned flaring from South County flares to 15 gr/100 cubic feet (239 ppmv) calculated as H₂S at standard conditions. Compliance with this rule is anticipated since the produced gas from Platform C is sweet.

D.2 - Technology Based Standard: Requires all flares to be smokeless and sets pilot flame requirements. The flare on Platform C is in compliance with this section.

D.3 - Flare Minimization Plan: This section requires sources to implement flare minimization procedures to reduce SO_x emissions. Torch has fully implemented their Flare Minimization Plan.

Rule 505 - Breakdown Conditions: This rule describes the procedures that Torch must follow when a breakdown condition occurs to any emissions unit associated with Platform C. A breakdown condition is defined as an unforeseeable failure or malfunction of (1) any air pollution control equipment or related operating equipment which causes a violation of an emission limitation or restriction prescribed in the APCD Rules and Regulations, or by State law, or (2) any in-stack continuous monitoring equipment, provided such failure or malfunction:

- a. Is not the result of neglect or disregard of any air pollution control law or rule or regulation;
- b. Is not the result of an intentional or negligent act or omission on the part of the owner or operator;
- c. Is not the result of improper maintenance;
- d. Does not constitute a nuisance as defined in Section 41700 of the Health and Safety Code;
- e. Is not a recurrent breakdown of the same equipment.

Rule 603 - Emergency Episode Plans: Section "A" of this rule requires the submittal of *Stationary Source Curtailment Plan* for all stationary sources that can be expected to emit more than 100 tons per year of hydrocarbons, nitrogen oxides, carbon monoxide or particulate matter. Torch submitted such a plan on July 23, 1994. This Plan was approved in November 1994. It was updated on November 30, 1998.

3.5 Compliance History

This section contains a summary of the compliance history for this facility and was obtained from documentation contained in the APCD's Administrative file.

3.5.1 Variances: Torch has been operating under emergency order variances (HB Case No. 21-98R and 33-98R) to allow additional flaring and pigging caused by inspection/repair of sub-sea pipelines, as ordered by the MMS. The 'flaring' variance expired on December 31, 1998. Issuance of the proposed permit 9112 will make the 'pigging' variance unnecessary; it is the APCD's intent to request the Hearing Board to discontinue the pigging variance at that time.

3.5.2 Violations: Five Notices of Violation (NOVs) have been issued since the original permit was issued:

NOV No. 5101: Violation of Rule 331. Issued on 3/24/95. Specifically, not repairing leaks within the required time line. Resolved Date: 5/12/95.

NOV No. 5112: Violation of Rule 323. Issued on 7/25/95. Specifically, using architectural coatings containing VOC in excess of allowed limits (340 g/l). Resolved Date: 7/25/97.

(NOV)/AIDOC No. 5120: Violation of Rule 323. Issued on 11/20/95. Specifically, using architectural coatings (paint) cans not labeled. Resolved date: 11/21/95

NOV No. 5828: Violation of Rule 206. Issued on 3/31/98. Specifically, exceeding the allowed throughput for the Wemco unit. Resolved 4/27/98

NOV No. 5825: Violation of Rule 206. Issued 3/31/98. Specifically, exceeding the allowed throughput for the Wemco unit. (this NOV was issued to Unocal also) Resolved 4/27/98

- 3.5.3 Significant Historical Hearing Board Actions/NOVs: There are no significant historical Hearing Board actions or NOVs.

Table 3.1 - Generic Federally-Enforceable APCD Rules

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 101</u> : Compliance by Existing Installations	All emission units	Emission of pollutants
<u>RULE 102</u> : Definitions	All emission units	Emission of Pollutants
<u>RULE 103</u> : Severability	All emission units	Emission of pollutants
<u>RULE 201</u> : Permits Required	All emission units	Emission of pollutants
<u>RULE 202</u> : Exemptions to Rule 201	Applicable emission units, as listed in form 1302-H of the Part 70 application	Insignificant activities/emissions, per size/rating/function
<u>RULE 203</u> : Transfer	All emission units	Change of ownership
<u>RULE 204</u> : Applications	All emission units	Addition of new equipment of modification to existing equipment.
<u>RULE 205</u> : Standards for Granting Permits	All emission units	Emission of pollutants
<u>RULE 206</u> : Conditional Approval of Authority to Construct or Permit to Operate	All emission units	Applicability of relevant Rules
<u>RULE 207</u> : Denial of Applications	All emission units	Applicability of relevant Rules
<u>RULE 208</u> : Action on Applications – Time Limits	All emission units. Not applicable to Part 70 permit applications.	Addition of new equipment or modification to existing equipment.
<u>RULE 212</u> : Emission Statements	All emission units	Administrative
<u>RULE 301</u> : Circumvention	All emission units	Any pollutant emission
<u>RULE 302</u> : Visible Emissions	All emission units	Particulate matter emissions
<u>RULE 305</u> : PM Concentration -- South Zone	Each PM source	Emission of PM in effluent gas
<u>RULE 309</u> : Specific Contaminants	All emission units	Combustion contaminants
<u>RULE 310</u> : Odorous Org. Sulfides	All emission units	Emission of organic sulfides
<u>RULE 311</u> : Sulfur Content of Fuel	All combustion units	Use of fuel containing sulfur

Generic Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 317</u> : Organic Solvents	Emission units using solvents	Solvent used in process operations.
<u>RULE 322</u> : Metal Surface Coating Thinner and Reducer	Emission units using solvents	Solvent used in process operations.
<u>RULE 323</u> : Architectural Coatings	Paints used in maintenance and surface coating activities	Application of architectural coatings.
<u>RULE 324</u> : Disposal and Evaporation of Solvents	Emission units using solvents	Solvent used in process operations.
<u>RULE 505.A, B1, D</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULE 603</u> : Emergency Episode Plans	Stationary sources with PTE greater than 100 tpy	Nuevo – South County Offshore is a major source.
<u>REGULATION VIII</u> : New Source Review	All emission units	Addition of new equipment or modification to existing equipment. Applications to generate ERC Certificates.
<u>REGULATION XIII (RULES 1301-1305)</u> : Part 70 Operating Permits	All emission units	Nuevo – South County Offshore is a major source.

Table 3.2 - Unit-Specific Federally-Enforceable APCD Rules

Unit-Specific Requirements	Affected Emission Units	Basis for Applicability
<u>RULE 325</u> : Crude Oil Production and Separation	ID #'s 8006-22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32	All pre-custody production and processing emission units
<u>RULE 331</u> : Fugitive Emissions Inspection & Maintenance	All components (valves, flanges, seals, compressors and pumps) used to handle oil and gas : ID #'s 8006-7,8	Components emit fugitive ROCs.
<u>RULE 333</u> : Control of Emissions from Reciprocating IC Engines	Piston IC engines only; ID #s 8006-1,2,3	IC engines exceeding 100 bhp rating.
<u>RULE 359</u> : Flares and Thermal Oxidizers	Flare Relief System; ID # 8006-15	Flaring.

Table 3.3 - Non-Federally-Enforceable APCD Rules

Requirement	Affected Emission Units	Basis for Applicability
<u>RULE 210</u> : Fees	All emission units	Administrative
<u>RULE 303</u> : Nuisance	All emission units	Emissions that can injure, damage or offend.
<u>RULES 501-504</u> : Variance Rules	All emission units	Administrative
<u>RULE 505.B2, B3, C, E, F, G</u> : Breakdown Conditions	All emission units	Breakdowns where permit limits are exceeded or rule requirements are not complied with.
<u>RULES 506-519</u> : Variance Rules	All emission units	Administrative

Table 3.4 – Adoption Dates of APCD Rules Applicable at Issuance of Permit

<u>Rule No.</u>	<u>Rule Name</u>	<u>Adoption Date</u>
<u>Rule 101</u>	<u>Compliance by Existing Installations: Conflicts</u>	<u>June 1981</u>
<u>Rule 102</u>	<u>Definitions</u>	<u>April 17, 1997</u>
<u>Rule 103</u>	<u>Severability</u>	<u>October 23, 1978</u>
<u>Rule 201</u>	<u>Permits Required</u>	<u>April 17, 1997</u>
<u>Rule 202</u>	<u>Exemptions to Rule 201</u>	<u>April 17, 1997</u>
<u>Rule 203</u>	<u>Transfer</u>	<u>April 17, 1997</u>
<u>Rule 204</u>	<u>Applications</u>	<u>April 17, 1997</u>
<u>Rule 205</u>	<u>Standards for Granting Permits</u>	<u>April 17, 1997</u>
<u>Rule 206</u>	<u>Conditional Approval of Authority to Construct or Permit to Operate</u>	<u>October 15, 1991</u>
<u>Rule 207</u>	<u>Denial of Applications</u>	<u>October 23, 1978</u>
<u>Rule 208</u>	<u>Action on Applications - Time Limits</u>	<u>April 17, 1997</u>
<u>Rule 212</u>	<u>Emission Statements</u>	<u>October 20, 1992</u>
<u>Rule 301</u>	<u>Circumvention</u>	<u>October 23, 1978</u>

<u>Rule 302</u>	<u>Visible Emissions</u>	<u>June 1981</u>
<u>Rule 303</u>	<u>Nuisance</u>	<u>October 23, 1978</u>
<u>Rule 305</u>	<u>Particulate Matter Concentration - Southern Zone</u>	<u>October 23, 1978</u>
<u>Rule 309</u>	<u>Specific Contaminants</u>	<u>October 23, 1978</u>
<u>Rule 310</u>	<u>Odorous Organic Sulfides</u>	<u>October 23, 1978</u>
<u>Rule 311</u>	<u>Sulfur Content of Fuels</u>	<u>October 23, 1978</u>
<u>Rule 317</u>	<u>Organic Solvents</u>	<u>October 23, 1978</u>
<u>Rule 318</u>	Vacuum Producing Devices or Systems -- South Zone	October 23, 1978
<u>Rule 322</u>	<u>Metal Surface Coating Thinner and Reducer</u>	<u>October 23, 1978</u>
<u>Rule 323</u>	<u>Architectural Coatings</u>	<u>July 18, 1996</u>
<u>Rule 324</u>	<u>Disposal and Evaporation of Solvents</u>	<u>October 23, 1978</u>
<u>Rule 325</u>	<u>Crude Oil Production and Separation</u>	<u>January 25, 1994</u>
<u>Rule 331</u>	<u>Fugitive Emissions Inspection and Maintenance</u>	<u>December 10, 1991</u>
<u>Rule 333</u>	<u>Control of Emissions from Reciprocating Internal Combustion Engines</u>	<u>April 17, 1997</u>
<u>Rule 359</u>	<u>Flares and Thermal Oxidizers</u>	<u>June 28, 1994</u>
<u>Rule 505</u>	<u>Breakdown Conditions (Section A, B1 and D)</u>	<u>October 23, 1978</u>
<u>Rule 603</u>	<u>Emergency Episode Plans</u>	<u>June 15, 1981</u>
<u>Reg. VIII</u>	<u>New Source Review</u>	<u>April 17, 1997</u>
<u>Rule 901</u>	<u>New Source Performance Standards (NSPS)</u>	<u>May 16, 1996</u>
<u>Rule 903</u>	<u>Outer Continental Shelf (OCS) Regulations</u>	<u>November 10, 1992</u>
<u>Rule 1001</u>	<u>National Emission Standards for Hazardous Air Pollutants (NESHAPS)</u>	<u>October 23, 1993</u>
<u>Rule 1301</u>	<u>General Information</u>	<u>September 18, 1997</u>
<u>Rule 1302</u>	<u>Permit Application</u>	<u>November 9, 1993</u>
<u>Rule 1303</u>	<u>Permits</u>	<u>November 9, 1993</u>
<u>Rule 1304</u>	<u>Issuance, Renewal, Modification and Reopening</u>	<u>November 9, 1993</u>
<u>Rule 1305</u>	<u>Enforcement</u>	<u>November 9, 1993</u>

4.0 Engineering Analysis

4.1 General

The engineering analyses performed for this permit were limited to the review of:

- ☞ facility process flow diagrams
- ☞ emission factors and calculation methods for each emissions unit
- ☞ emission control equipment (including RACT, BACT, NSPS, NESHAP, MACT)
- ☞ emission source testing, sampling, CEMS, CAM
- ☞ process monitors needed to ensure compliance

Unless noted otherwise, default ROC/THC reactivity profiles from the APCD's document titled "VOC/ROC Emission Factors and Reactivities for Common Source Types" dated 7/13/98 (ver 1.1) was used to determine non-methane, non-ethane fraction of THC.

4.2 Stationary Combustion Sources

The stationary combustion sources associated with Platform C consist of diesel-fired piston internal combustion engines and the flare relief system. Primary power on the platform is supplied by a subsea electric cable connected to the Southern California Edison electric grid.

- 4.2.1 *Piston Internal Combustion Engines:* All platform internal combustion engines are diesel-fuel fired. The North (25-ton) North pedestal crane engine is subject to permit and Rule 333 requirements. The other stationary IC engines on the platform rated over 100-bhp are the South (15-ton) South pedestal crane and the emergency generator. Temporary engines used to support drilling and well workover activities are expected to occur during the life of the platform. Applicability of permit requirements and associated controls for this temporary equipment will be determined according to the rules in effect at the time of use. Currently, most drilling and workover rig engines are not subject to permit and control requirements. The calculation methodology is similar for all stationary IC engines:

$$ER = [(EF \times BHP \times BSFC \times LCF \times HPP) , 10^6]$$

where:

ER =	emission rate (lb/period)
EF =	pollutant specific emission factor (lb/MMBtu)
BHP =	engine rated max brake-horsepower (bhp)
BSFC =	engine brake specific fuel consumption (Btu/bhp-hr)
LCF =	liquid fuel correction factor, LHV to HHV
HPP =	operating hours per time period (hrs/period)

The emission factor is an energy based value using the higher heating value (HHV) of the fuel. As such, an energy based BSFC value must also be based on the HHV. Manufacturer BSFC data are typically based on lower heating value (LHV) data and thus require a conversion (LCF) to the HHV basis. For diesel fuel oil, the HHV values are typically 6 percent greater than the corresponding LHV data. Volume or mass based BSFC data do not need any conversions.

- 4.2.2 *Crane Engines*: The North pedestal crane is driven by a Detroit Diesel Model 6V-71 engine rated at 230 bhp equipped with "B" type injectors. The use of these injectors coupled with the low operating loads allows this engine to comply with the Rule 333 NO_x emission factor, 8.4 g/bhp-hr. A NO_x emission factor of 2.40 lb/MMBtu is derived, based on a brake-specific fuel consumption (BSFC) from the manufacturer's specification of 7,272 Btu/bhp-hr. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1 (10/96), and the SO_x emission factor is based on mass balance calculation. The South pedestal crane is driven by a Detroit Diesel Model 3-71 engine rated at 109 bhp. This engine has no emission controls. The emission factors for PM, CO and ROC are from USEPA AP-42, Table 3.3-1, and the SO_x emission factor is based on mass balance calculation. For NO_x, the emission factor is 2.26 lb/MMBtu, i.e., the same as used in the previous OCS permit 9112 dated 9/94.

The IC engines on the platform are not equipped with diesel fuel flow metering devices. All IC engines are equipped with non-resettable hour meters. The actual engine usage is logged each time the engine is fired. Emissions are calculated using total elapsed run time, the maximum rated engine bhp rating and BSFC data (from Table 5.1-1) to determine the number of gallons consumed per unit time. Ongoing compliance with Rule 333 will be accomplished by quarterly inspections per Section E of this rule and biennial source testing on the North pedestal crane engine.

- 4.2.3 *Flare Relief System*: The flare relief system consists of both a high and low pressure header that connects to various PSVs on production and test vessels, compressors, and glycol system. Both planned and unplanned flaring events occur. The flare itself is an open pipe PTS flare tip. The design heat release is 2500 MMBtu/hr. Emission factors for NO_x, CO and ROC are based on the USEPA AP-42, Table 11.5-1 (9/91). PM emission factors are based on a SBCAPCD flare study. Sulfur oxide emissions are based on mass balance calculations assuming both planned and pilot/purge sulfur levels at 239 ppmv and unplanned flaring sulfur levels at 239 ppmv. The emissions for both planned and unplanned flaring events are calculated. The SO_x emission factor is determined using the equation: $(0.169)(\text{ppmv S})/(\text{HHV})$. The calculation methodology for the flare is:

$$ER = [(EF \times SCFPP \times HHV) \times 10^6]$$

where: ER = emission rate (lb/period)
 EF = pollutant specific emission factor (lb/MMBtu)
 SCFPP = gas flow rate per operating period (scf/period)
 HHV = gas higher heating value (Btu/scf)

The flare header is equipped with a 10-inch Daniels orifice meter that is capable of detecting flow rates between 0.012 - 10 MMSCFD. The APCD and Torch have agreed on a low flow, or minimum, detection limit that is equivalent to 500 scfh (based on a velocity of 0.25 std ft/sec). This rate is higher than the (purge) pilot flow rate of 100 scfh. As such, there is no practical method for assessing flow rates between 100 and 500 scfh. Therefore, based on USEPA and CARB's data reporting guidelines, a value of half the minimum detection limit, is being assumed as "continuous" planned flaring.

4.3 Fugitive Hydrocarbon Sources

Emissions of reactive organic compounds from piping components such as valves, flanges and connections have been *assigned* emission factors pursuant to APCD P&P 6100.061 (*Determination of Fugitive Hydrocarbon Emissions at Oil and Gas Facilities Through the Use of Facility Component Counts - Modified for Revised ROC Definition*). The component leak-path was counted consisted with P&P 6100.061. This leak-path count is not the same as the “component” count required by APCD Rule 331. Both gas/light liquid and oil side components are in service at this facility

The number of emission leak-paths were determined by the operator and these data were verified by APCD staff by checking a representative number of P&IDs and by site checks. Based on available data from Torch, a total of 5,885 oil/emulsion component leak-paths and 5,708 gas/light-liquid component leak-paths exist on the platform (*NO change from the last update, per Torch letter of 12/19/97*). The calculation methodology for the fugitive emissions is:

$$ER = [(EF \times CLP \div 24) \times (1 - CE) \times (HPP)]$$

where:

ER =	emission rate (lb/period)
EF =	ROC emission factor (lb/clp-day)
CLP =	component leak-path (clp)
CE =	control efficiency
HPP =	operating hours per time period (hrs/period)

An emission control efficiency of 80 percent is credited to all components that are safe to monitor (as defined per Rule 331) due to the implementation of a APCD-approved Inspection and Maintenance program for leak detection and repair consistent with Rule 331 requirements. Unsafe to monitor components are not eligible for I&M control credit. Ongoing compliance is determined in the field by inspection with an organic vapor analyzer and verification of operator records.

Permitted fugitive ROC emissions from fugitive components decreased by about eight percent from the prior PTO, reflecting the elimination of ethane from the list of ROCs. Because all equipment are pre-existing and no physical or process changes triggered this decrease, the change does not affect the facility’s Net Emission Increase.

4.4 Crew and Supply Vessels

Torch utilizes both crew boat and supply boats in support of Platform C. For crew and supply boats, Torch has identified two types of vessels. One type is for primary usage and is controlled for NO_x. The other type is normally uncontrolled for NO_x and is used as a spot-charter. The crew boat spot-charter trips are limited to 10 percent of actual crew boat trips. The supply boat spot-charter trips are limited to 10 percent of actual supply boat trips.

The primary supply boat currently assigned to Platform A is the *M/V Santa Cruz*. For all OCS sources, the typical time in mode for a trip to and from the platform is assumed to be approximately 11 hours (8 hours cruise, 2 hours maneuver, 1 hour idle). This time includes travel to and from the platform within a 25-mile radius. The *M/V Santa Cruz* is equipped with two-2,000 bhp (at 1600 rpm) main diesel-fired IC engines (CAT 3516B). These main engines employ the following NO_x control measures: A Dual Advanced Diesel Engine Management (ADEMII)

modules with electronically controlled unit injectors, as well as dual turbo-chargers and a separate circuit after-cooler core. Additional diesel-fired engines on this boat include two-170 kW CAT 3306B DIT generator sets each powered by identical 245 bhp engines; and one bow thruster powered by a CAT 3408C DITA 515 bhp engine. The auxiliary engines are not controlled.

The crew boat assigned to Platform A is the *Roff Tide*. This vessel is equipped with three-510 bhp main diesel-fired IC engines (Detroit Diesel model 12V-71TI). These engines employ the following NO_x control measures: four-degree injection timing retard, turbo-charging, and inter-cooling. Additional diesel-fired engines on this vessel include two-30 kW auxiliary generators each powered by identical 109 bhp engines (Detroit Diesel model 3V-71). These auxiliary engines are not controlled. In addition, Torch may use the crew boat *Murdoch Tide*.

The permit assesses emission liability based solely on a single emission factor (the cruise mode with a load rating of 65 percent). The supply boat controlled engine has a NO_x emission factor of 5.48 g/bhp-hr. This converts to a fuel-based NO_x emission factor of 247 lb/1000 gallons of fuel, assuming a BSFC (engine efficiency number) value of 0.345-lb. fuel/bhp-hr. For crew boat engines with the controls listed above, a full load NO_x emission factor of 8.4 g/bhp-hr (337 lb/1000 gallons) is used. Sulfur oxide emissions are based on mass balance calculations assuming 0.20 weight percent sulfur diesel fuel. Other boat main engine emission factors for ROC and CO are taken from USEPA, AP-42 (Volume II), updated to reflect the larger size of the engine(s). For the auxiliary and bow thruster engines, emission factors are taken from USEPA, AP-42 (Volume I). Uncontrolled NO_x main engine emission factors for spot-charter supply boat usage are assumed to be 14 g/bhp-hr (561 lb/1000 gallons). The calculation methodology for the crew and supply boat main engine emissions is:

$$ER = [(EF \times EHP \times BSFC \times EL \times TM) \div (10^3)]$$

where:

ER =	emission rate (lbs per period)
EF =	full load pollutant specific emission factor (lb/1000 gallons)
EHP =	engine max rated horsepower (bhp)
BSFC =	engine brake specific fuel consumption (gal/bhp-hr)
EL =	engine load factors (percent of max fuel consumption)
TM =	time in mode (hours/period)

The calculations for the auxiliary engines are similar, except that a 50 percent engine load factor for the generators is utilized. Compliance with the main engine controlled emission rates shall be assessed through emission source testing. Ongoing compliance will be assessed through implementation of a APCD-approved Boat Monitoring and Reporting Plan. This Plan will be required to follow the APCD *Data Reporting Protocol for Crew and Supply Boat Activity Monitoring* document (dated June 21, 1991 and subsequent updates), wherever applicable. The requirements include: fuel usage meters on the main and auxiliary engines, a Global Positioning System (or equivalent location device) and a data gathering system, if appropriate. Alternative data collection and reporting methods that are equivalent in accuracy and reliability may be proposed by Torch as part of the Boat Monitoring and Reporting Plan. [See permit condition 9.C.4(c)]. Total mileage from Platform C to Port Hueneme is approximately 25 miles.

In addition, a permanently assigned emergency response vessel (i.e., the *Clean Seas II*) is associated with Platform C. The total engine horsepower, including auxiliary engines, is 1,770

bhp. Emissions liability is assigned in a prorated fashion among the eleven OCS platforms that utilize the vessel off the Santa Barbara coast. Emission factors, calculations and compliance procedures are the same as for the spot-charter supply vessels discussed above. If used, other emergency response boat fuel usage (and resulting emissions) shall be assessed against this emissions category.

4.5 Tanks/Vessels/Sumps/Separators

Tanks: Platform C has two (2) diesel fuel storage tanks. The diesel storage tank servicing the various IC engines on the platform is not controlled. Diesel tank emissions are small and are assumed to be less than 0.10 tpy (200 lb/year). The detailed tank calculations for compliance will be performed using the methods presented in USEPA AP-42, Chapter 7.

Vessels: Platform C has several pressure vessels (e.g., a production separator, a test separator, an oil surge shipping tank, a free water knockout tank, a well clean tank, a refrigerant surge tank and scrubbers). All pressure vessels are connected to the platform's gas gathering system. All PSVs, vents, and blowdown valves are connected to the flare relief system header. Emissions from pressure vessels are due to fugitive hydrocarbon leaks from valves and connections.

Sumps: The waste oil tank (ABJ-451) collects oily liquids from the well clean tank drain. The wastewater tank (ABJ-431) receives oily water from the platform deck drains. Vacuum trucks are periodically transported to the platform on the supply boat to remove solids from the wastewater tank.. The skimmer tank (ABJ-441) receives oil skimming and oily water from the well room drains. The wastewater tank, waste oil tank, and skimmer tank emissions are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). These vessels are classified as being in secondary production and heavy oil service and are all vented to the atmosphere. The calculation is:

$$ER = [(EF \times SAREA \div 24) \times (1 - CE) \times (HPP)]$$

where: ER = emission rate (lb/period)
 EF = ROC emission factor (lb/ft²-day)
 SAREA = unit surface area (ft²)
 CE = control efficiency
 HPP = operating hours per time period (hrs/period)

Portable tanks: Two 500 bbl. portable tanks are located on the platform on an as needed basis. They are used on an as-needed temporary basis for the following activities: handling crude oil fluids associated with the drilling of new wells only, consistent with the Rule 325.B.1.b exemption under which these tanks are allowed to operate without use of vapor recovery. Fugitive ROC emissions result from evaporative storage losses. Evaporative emissions from the Portable tanks are based on the CARB/KVB Report (*Emissions Characteristics of Crude Oil Production in California*, January 1983). These vessels are classified as being in secondary production and heavy oil service and are not vented to the vapor recovery system. The calculation is:

$$ER = [(EF \times SAREA \div 24) \times (1 - CE) \times (HPP)]$$

where: ER = emission rate (lb/period)
 EF = ROC emission factor (lb/ft²-day)
 SAREA = unit surface area (ft²)

HPP = operating period (period)

4.6 Vapor Recovery Systems

Gas from the waste water tank, skimmer tank and waste oil tank is compressed by the 80 scfm flotation deck vapor recovery compressor (CBA-291), which discharges to the well clean tank. The well clean tank, which also receives gas from the oil shipping surge tank, is used as the suction scrubber to remove entrained liquids from the gas streams for the 487 scfm main vapor compressor (CBA-202). The gas is compressed to about 30 psig and discharged to the main gas scrubber where the gas is commingled with the gas from the gross oil separators, test separators, and free water knockout. A control efficiency of 95 percent is assigned to the vapor recovery system, pursuant to APCD P&P 6100.030.92.

4.7 Helicopters

Platform C is equipped with a helicopter pad, but helicopters are not used for routine offshore transportation.

4.8 Other Emission Sources

The following is a brief discussion of other emission sources on Platform C:

Pigging: Pipeline pigging operations occur on the platform. Both oil and gas pig launching to the Platform B occurs. Emissions occur during the depressurization of these units, since a few pounds of back pressure remain in the chambers and ROC is emitted when chambers are opened to the atmosphere. Torch has stipulated in its 5/7/97 and 8/19/97 letters that the chambers are blanketed with sales gas before opening and the remaining pressure does not exceed 1 psig. The calculation

$$ER = [V_1 \times \rho \times wt \% \times EPP]$$

per period is:

<u>where:</u>	ER =	emission rate (lb/period)
	V_1 =	volume of vessel (ft ³)
	ρ =	density of vapor at actual conditions (lb/ft ³)
	wt % =	weight percent ROC-TOC
	EPP =	pigging events per time period (events/period)

General Solvent Cleaning/Degreasing: Solvent usage (not used as thinners for surface coating) occurring on Platform C as part of normal daily operations includes small cold solvent degreasing and wipe cleaning. Mass balance emission calculations are used assuming all the solvent used evaporates to the atmosphere.

Surface Coating: Surface coating operations typically include normal touch up activities. Entire platform painting programs are performed once every few years. Emissions are determined based on mass balance calculations assuming all solvents evaporate into the atmosphere. Emission of PM/PM₁₀ from paint overspray are not calculated due to the lack of established calculation techniques.

Abrasive Blasting: Abrasive blasting with CARB certified sands may be performed as a preparation step prior to surface coating. Particulate matter is emitted during this process. A general emission factor of 0.01 pound PM per pound of abrasive is used (SCAQMD - Permit Processing Manual, 1989) to estimate emissions of PM and PM₁₀. when needed for compliance evaluations. A PM/PM₁₀ ratio of 1.0 is assumed.

4.9 BACT/NSPS/NESHAP/MACT

None of the emission units at Platform C are subject to any best available control technology (BACT), NSPS or NESHAP/MACT provisions.

4.10 CEMS/Process Monitoring/CAM

4.10.1 CEMS: There are no CEMS at this facility.

4.10.2 Process Monitoring: In many instances, ongoing compliance beyond a single (snap shot) source test is assessed by the use of process monitoring systems. Examples of these monitors include: engine hour meters, fuel usage meters, water injection mass flow meters, flare gas flow meters and hydrogen sulfide analyzers. Once these process monitors are in place, it is important that they be well maintained and calibrated to ensure that the required accuracy and precision of the devices are within specifications. At a minimum, the following process monitors will be required to be calibrated and maintained in good working order:

- Crew Boat Diesel Fuel Meters (main and auxiliary engines)
- Supply Boat Diesel Fuel Meters (main and auxiliary/bow thruster engines)
- Flare Header Flow Meter
- Hour Meters (cranes, emergency generator)

To implement the above calibration and maintenance requirements, a *Process Monitor Calibration and Maintenance Plan* was required of Torch. This Plan takes into consideration manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgement is be utilized.

4.10.3 CAM: Nuevo South County Offshore is a major source that is subject to the USEPA's Compliance Assurance Monitoring (CAM) rule (40 CFR 64). Any emissions unit at the facility with uncontrolled emissions potential exceeding major source emission thresholds for any pollutant is subject to CAM provisions. Torch must submit a Part 64 monitoring plan to the APCD at the time of their first renewal of this Part 70 permit, if applicable to the stationary source. . They may also be required to submit such a plan, as applicable, if this permit is reopened because of a significant permit revision.

4.11 Source Testing/Sampling

Source testing and sampling are required in order to ensure compliance with permitted emission limits, prohibitory rules, control measures and the assumptions that form the basis of this operating permit. Table 4.1 details the pollutants, test methods and frequency of required testing. Torch will be required to follow the APCD *Source Test Procedures Manual* (May 24, 1990 and all updates). The following emission units are required to be source tested.

- North (25-ton) North crane Engine

- Supply Boat Main Engines
- Crew Boat Main Engines

At a minimum, the process streams below are required to be sampled and analyzed.

TABLE 4.1 - SOURCE TEST REQUIREMENTS

<u>Emission Points</u>	<u>Pollutants/ Parameters</u>	<u>Test Methods</u>	<u>Allowable exhst.concntrn.</u>
<ul style="list-style-type: none">- Crane Engine (North)- Crew Boat Main Engines- Supply Boat Main Engines	NO _x (ppmv, lb/hr)	CARB 1-100 or USEPA 7E	797 ppm @ 15 % O ₂
	CO (ppmv, lb/hr)	CARB 1-100 or USEPA 10	
	ROC (ppmv, lb/hr)	USEPA 18	
	Fuel Flow Rate	Fuel meter for boats; day tank level for crane	
	Fuel High Heating Value	ASTM	
	Total S Content	ASTM	

Site Specific Requirements

- All emissions tests to consist of three 40-minute runs. Crane engine tests to consist of three 20-minute runs. Crane engine to be tested at safe maximum load. Crew and supply boat main engines to be tested at cruise load. Crew boat test runs may be shortened if the boat is used on normal trips to/from the platform. Additional testing may be required if loads are not achieved.
 - The specific project crew and supply boat to be tested shall be determined by the APCD.
 - USEPA methods 1-4 to be used to determine O₂, dry MW, moisture content, CO₂, and stack flow rate. Alternatively, USEPA 19 may be used to determine stack flow for NO_x emission rate purposes.
 - SO_x emissions to be determined by mass balance calculation.
 - The main engines from one crew and one supply boat shall be tested annually. The crane engine shall be tested biennially.
 - Procedures to obtain the required operating loads shall be clearly defined in the source test plan.
-

- Produced Gas: Sample taken at production separator outlet. Analysis for: HHV, total sulfur, hydrogen sulfide, composition. Samples to be taken on an annual basis.
- Produced Oil: Sample taken at outlet from production separator. Analysis for: API gravity; true vapor pressure (per Rule 325 methods). Samples to be taken on a biennial basis.

All sampling and analyses are required to be performed according to APCD approved procedures and methodologies. Typically, the appropriate ASTM methods are acceptable. It is important that all sampling and analysis be traceable by chain of custody procedures.

5.0 Emissions

5.1 General

Current ATC/PTO Mod 9112-01 (Crew and supply boat permitted emission and operation limits) and ATC/PTO 9112-02 (Removal of floatation cell and removing vapor recovery service to waste oil sump, etc.) are combined in this PTO 9112. All provisions in these permits were analyzed to determine the permit conditions of PTO 9112 including the permitted emission limits of criteria pollutants from all applicable emission units.

Emissions calculations are divided into "permitted" and "exempt" categories. Permit exempt equipment is determined by APCD Rule 202. The permitted emissions for each emissions unit is based on the equipment's potential-to-emit (as defined by Rule 102). Section 5.2 details the permitted emissions for each emissions unit. Section 5.3 details the overall permitted emissions for the facility based on reasonable worst-case scenarios using the potential-to-emit for each emissions unit. Section 5.4 provides the federal potential to emit calculation using the definition of potential to emit used in Rule 1301. Section 5.5 provides the estimated emissions from permit exempt equipment, also serves as the Part 70 list of insignificant emission. Section 5.6 provides the net emissions increase calculation for the facility and the stationary source. In order to track accurately the emissions from a facility, the APCD uses a computer database. Attachment 10.4 contains the APCD's documentation for the information entered in that database.

5.2 Permitted Emission Limits - Emission Units

Each emissions unit associated with the facility was analyzed to determine the potential-to-emit for the following pollutants:

- ⇒ Nitrogen Oxides (NO_x)³
- ⇒ Reactive Organic Compounds (ROC)
- ⇒ Carbon Monoxide (CO)
- ⇒ Sulfur Oxides (SO_x)⁴
- ⇒ Particulate Matter (PM)⁵
- ⇒ Particulate Matter smaller than 10 microns (PM₁₀)

Permitted emissions are calculated for both short term (hourly and daily) and long term (quarterly and annual) time periods. Section 4.0 (Engineering Analysis) provides a general discussion of the basic calculation methodologies and emission factors used. The reference documentation for the specific emission calculations, as well as detailed calculation spreadsheets, may be found in Section 4 and Attachments 10.1 and 10.2 respectively. Table 5.1-1 provides the basic operating characteristics. Table 5.1-2 provides the specific emission factors. Tables 5.1-3 and 5.1-4 show the permitted short-term and permitted long-term emissions for each unit or operation. In the tables, the last column indicates whether the emission limits are federally enforceable. Those emissions limits that are

³ Calculated and reported as nitrogen dioxide (NO₂)

⁴ Calculated and reported as sulfur dioxide (SO₂)

⁵ Calculated and reported as all particulate matter smaller than 100 µm

federally enforceable are indicated by the symbol “FE”. Those emissions limits that are APCD-only enforceable are indicated by the symbol “A”.

5.3 Permitted Emission Limits - Facility Totals

The total potential-to-emit for all emission units associated with the facility was analyzed. This analysis looked at the reasonable worst-case operating scenarios for each operating period. The equipment operating in each of the scenarios are presented below. Unless otherwise specified, the operating characteristics defined in Table 5.1-1 for each emission unit are assumed. Table 5.2 shows the total permitted emissions for the facility.

Hourly and Daily Scenario:

- Both North and South pedestal crane engines
- Flare purge and pilot
- Planned continuous flaring
- Spot charter supply boat
 - Main engines operating at cruise mode
 - Generator engines on supply boat provide half of maximum engine rating
 - Bow thruster on supply boat does not operate during peak hour
- Controlled crew boat
 - Main engines operating at cruise mode
 - Auxiliary engines on crew boat provide half of maximum engine rating
- Fugitive components
- Oil/gas pig launcher
- Waste oil sump
- Skimmer tank
- Wastewater tank
- Solvent usage
- Portable tanks (2x)

Quarterly and Annual Scenario:

- Both North and South pedestal crane engines
- Flare purge and pilot
- Planned continuous flaring
- Planned intermittent (other) flaring
- Unplanned flaring
- Controlled and Uncontrolled supply boat
 - Main engines operating at cruise mode
 - Generator engines on supply boat provide half of maximum engine rating
 - Bow thruster
- Controlled and Uncontrolled crew boat
 - Main engines operating at cruise mode
 - Auxiliary engines on crew boat provide half of maximum engine rating
- Fugitive components
- Oil/gas pig launchers
- Waste oil sump
- Skimmer tank

- Wastewater tank
- Solvent usage
- Portable tanks (2x)

5.4 Part 70: Federal Potential to Emit for the Facility

Table 5.3 lists the federal Part 70 potential to emit. Being subject to the OCS Air Regulation, all project emissions, except fugitive emissions, are counted in the federal definition of potential to emit. However, fugitives are counted in the federal PTE if the facility is subject to any applicable NSPS or NESHAP requirement.

5.5 Exempt Emission Sources/Part 70 Insignificant Emissions

Equipment/activities exempt pursuant to Rule 202 include maintenance operations involving surface coating. Under the APCD's Part 70 regulation, equipment/activities that are exempt under Rule 202 are considered insignificant units emissions. In addition, *insignificant activities* such as maintenance operations using paints and coatings, contribute to the facility emissions. Table 5.4 list these exempt emissions units and the expected emissions. These are emission estimates only. They are not limitations.

5.6 Net Emissions Increase Calculation

This facility's net emissions increase since November 15, 1990 (the day the federal Clean Air Act Amendments was adopted in 1990) is zero.

The aggregate NEI for Platform C is shown in Table 5.5 and in Table 5 of Attachment 10.4.

Table 5.1-1

Table 5.1-2

Table 5.1-3

Table 5.1-4

Table 5.2

Table 5.3

Table 5.4

Table 5.5

6.0 Air Quality Impact Analyses

6.1 *Modeling*

Air quality modeling was not required for this stationary source.

6.2 *Increments*

An air quality increment analysis was not required for this stationary source

6.3 *Monitoring*

Air quality monitoring is not required for this stationary source.

6.4 *Health Risk Assessment*

A Health Risk Assessment was not required for this stationary source.

7.0 CAP Consistency, Offset Requirements and ERCs

7.1 General

The Nuevo South County Offshore stationary source is located in an ozone nonattainment area. Santa Barbara County is nonattainment for both the federal and state ozone ambient air quality standards. In addition, the County is nonattainment with the state PM₁₀ ambient air quality standard. Therefore, emissions from all emission units at the stationary source and its constituent facilities must be consistent with the provisions of the USEPA and State approved Clean Air Plans (CAP) and must not interfere with progress towards attainment of federal and state ambient air quality standards. Under APCD regulations, any modifications at Platform C (or the Nuevo South County Offshore source) that result in an emissions increase of any nonattainment pollutant exceeding 25 lbs/day must apply BACT (NAR). Additional increases may trigger offsets at the source or elsewhere so that there is a net air quality benefit for Santa Barbara County. These offset threshold levels are 55 lbs/day for all non-attainment pollutants except PM₁₀ for which the level is 80 lbs/day.

7.2 Clean Air Plan

Santa Barbara County does not meet the current hourly federal ambient ozone standard of 0.12 ppm or the state hourly ambient ozone standard of 0.09 ppm. The APCD has submitted the 1998 Clean Air Plan (Final, 12/98) to the USEPA through the State of California Air Resources Board. The 1998 CAP, if approved by the USEPA, will be incorporated into the California State Implementation Plan (SIP). The CAP demonstrates a Rate-of-Progress and how the county will attain the ambient ozone standards by 1999 through the application of emission controls on all pollution sources.

7.3 Offset Requirements

The Nuevo South County Offshore stationary source does not currently require emission offsets.

7.4 Emission Reduction Credits

The Nuevo South County Offshore stationary source does not generate or provide emission reduction credits.

8.0 Lead Agency Permit Consistency

The United States Department of Interior's Minerals Management Service approved the *Plan of Development* for Torch's Platform C on June 9, 1977.

9.0 Permit Conditions

This section lists the applicable permit conditions for Platform C. Section A lists the standard administrative conditions. Section B lists 'generic' permit conditions, including emission standards, for all equipment in this permit. Section C lists conditions affecting specific equipment. Section D lists non-federally enforceable (i.e., APCD only) permit conditions. Conditions listed in Sections A, B, and C are enforceable by the USEPA, the APCD, the State of California and the public. Conditions listed in Section D are enforceable only by the APCD and the State of California. Where any reference contained in Sections 9.A, 9.B, or 9.C refers to any other part of this permit, that part of the permit referred to is federally enforceable. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

9.A Standard Administrative Conditions

The following federally-enforceable administrative permit conditions apply to Platform C:

- A.1 **Condition Acceptance.** Acceptance of this operating permit by Torch shall be considered as acceptance of all terms, conditions, and limits of this permit. [Re: PTO 9112]
- A.2 **Grounds for Revocation.** Failure to abide by and faithfully comply with this permit shall constitute grounds for the APCD to petition for permit revocation pursuant to California Health & Safety Code Section 42307 *et seq.* [Re: PTO 9112]
- A.3 **Defense of Permit.** Torch agrees, as a condition of the issuance and use of this PTO, to defend at its sole expense any action brought against the APCD because of issuance of this permit. Torch shall reimburse the APCD for any and all costs including, but not limited to, court costs and attorney's fees which the APCD may be required by a court to pay as a result of such action. The APCD may, at its sole discretion, participate in the defense of any such action, but such participation shall not relieve Torch of its obligation under this condition. The APCD shall bear its own expenses for its participation in the action. [Re: PTO 9112]
- A.4 **Reimbursement of Costs.** All reasonable expenses, as defined in APCD Rule 210, incurred by the APCD, APCD contractors, and legal counsel for all activities related to the implementation of Regulation XIII (*Part 70 Operating Permits*) that follow the issuance of this PTO permit, including but not limited to permit condition implementation, compliance verification and emergency response, directly and necessarily related to enforcement of the permit shall be reimbursed by Torch as required by Rule 210. [Re: PTO 9112, APCD Rule 210]
- A.5 **Access to Records and Facilities.** As to any condition that requires for its effective enforcement the inspection of records or facilities by the APCD or its agents, Torch shall make such records available or provide access to such facilities upon notice from the APCD. Access shall mean access consistent with California Health and Safety Code Section 41510 and Clean Air Act Section 114A. [Re: PTO 9112]
- A.6 **Compliance.** Nothing contained within this permit shall be construed by Torch to allow the violation of any local, State or Federal rule, regulation, ambient air quality standard or air quality increment. [Re: PTO 9112]

- A.7 **Consistency with Analysis.** Operation under this permit shall be conducted by Torch consistent with all data, specifications and assumptions included with the application and supplements thereof (as documented in the APCD's project file) and the APCD's analyses under which this permit is issued. [Re: PTO 9112]
- A.8 **Consistency with State and Local Permits.** Nothing in this permit shall relax any air pollution control requirement imposed on the Platform C by the State of California or the California Coastal Commission in any consistency determination for the Project with the California Coastal Act. [Re: PTO 9112]
- A.9 **Compliance with Department of Interior Permits.** Torch shall comply with all air quality control requirements imposed by the Department of the Interior in the *Plan of Development* approved for Platform C on May 6, 1968, and any subsequent modifications. Such requirements shall be enforceable by the APCD. [Re: PTO 9112]
- A.10 **Compliance with Permit Conditions.**
- (a) Torch shall comply with all permit conditions in Sections 9.A, 9.B, and 9.C and with provisions listed elsewhere in the permit that are specified as federal applicable requirements.
 - (b) This permit does not convey property rights or exclusive privilege of any sort to Torch.
 - (c) Any permit noncompliance with sections 9.A, 9.B, or 9.C constitutes a violation of the Clean Air Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application.
 - (d) It shall not be a defense for Torch in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit
 - (e) A pending permit action or notification of anticipated noncompliance by Torch does not stay any permit condition.
 - (f) Within a reasonable time period, Torch shall furnish any information requested by the Control Officer, in writing, for the purpose of determining:
 - (i) compliance with the permit, or
 - (ii) whether or not cause exists to modify, revoke and reissue, or terminate a permit or for an enforcement action.
 - (g) In the event that any condition herein is determined to be in conflict with any other condition contained herein, then, if principles of law do not provide to the contrary, the condition most protective of air quality and public health and safety shall prevail to the extent feasible.
- [Re: 40 CFR Part 70.6.(a)(6), APCD Rule 1303.D.1]
- A.11 **Emergency Provisions.** Torch shall comply with the requirements of the APCD, Rule 505 (Upset/Breakdown rule) and/or APCD Rule 1303.F, whichever is applicable to the emergency situation. In order to maintain an affirmative defense under Rule 1303.F, Torch shall provide the

APCD, in writing, a “notice of emergency” within 2 working days of the emergency. The “notice of emergency” shall contain the information/documentation listed in Sections (1) through (5) of Rule 1303.F. [Re: APCD Rule 1303.F]

A.12 Compliance Plan.

- (a) Torch shall comply with all federally enforceable requirements that become applicable during the permit term in a timely manner.
- (b) For all applicable equipment, Torch shall implement and comply with any specific compliance plan required under any federally-enforceable rules or standards.
[Re: APCD Rule 1302.D.2]

A.13 Right of Entry. The Regional Administrator of USEPA, the Control Officer, or their authorized representatives, upon the presentation of credentials, shall be permitted by Torch to enter upon the premises where its Part 70 Source is located or where records must be kept:

- (a) To inspect the stationary source, including monitoring and control equipment, work practices, operations, and emission-related activity;
- (b) To inspect and duplicate, at reasonable times, records required by this Permit to Operate;
- (c) To sample substances or monitor emissions from the source or assess other parameters to assure compliance with the permit or applicable requirements, at reasonable times. Monitoring of emissions can include source testing.

[Re: APCD Rule 1303.D.2]

A.14 Severability. The provisions of this Permit to Operate are severable and if any provision of this Permit to Operate is held invalid, the remainder of this Permit to Operate shall not be affected thereby. [Re: APCD Rules 103 and 1303.D.1]

A.15 Permit Life. The Part 70 permit shall become invalid five years from the date of issuance, unless a timely and complete renewal application is submitted to the APCD. Any operation of the source by Torch to which this Part 70 permit is issued beyond the expiration date of this Part 70 permit and without a valid Part 70 operating permit (or a complete Part 70 permit renewal application) shall be a violation of the CAAA, § 502(a) and 503(d) and of the APCD rules.

Torch shall apply for renewal of the Part 70 permit no earlier than 18 months and not later than 6 months before the date of the permit expiration. Upon submittal of a timely and complete renewal application, the Part 70 permit shall remain in effect until the Control Officer issues or denies the renewal application. [Re: APCD Rule 1304.D.1]

A.16 Payment of Fees. Torch shall reimburse the APCD for all its Part 70 permit processing and compliance expenses for the stationary source on a timely basis. Failure to reimburse on a timely basis shall be a violation of this permit and of applicable requirements and can result in forfeiture of the Part 70 permit. Operation without a Part 70 permit subjects the source to potential enforcement action by the APCD and the USEPA pursuant to section 502(a) of the Clean Air Act. [Re: APCD Rules 1303.D.1 and 1304.D.11, 40 CFR 70.6(a)(7)]

A.17 **Prompt Reporting of Deviations.** Torch shall submit a written report to the APCD documenting each and every deviation from the requirements of this permit or any applicable federal requirements within 7 days after discovery of the violation, but not later than 30 days after the date of occurrence. The report shall clearly document 1) the probable cause and extent of the deviation 2) equipment involved, 3) the quantity of excess pollutant emissions, if any, and 4) actions taken to correct the deviation. The requirements of this condition shall not apply to deviations reported to APCD in accordance with Rule 505. *Breakdown Conditions*, or Rule 1303.F *Emergency Provisions*. [APCD Rule 1303.D.1, 40 CFR 70.6(a) (3)]

A.18 **Reporting Requirements.**

Reporting Requirements/Compliance Certification. Torch shall submit compliance certification reports to the USEPA and the Control Officer every six months. These reports shall be submitted on APCD forms and shall identify each applicable requirement/condition of the permit, the compliance status with each requirement/condition, the monitoring methods used to determine compliance, whether the compliance was continuous or intermittent, and include detailed information on the occurrence and correction of any deviations (excluding emergency upsets) from permit requirement. The reporting periods shall be each half of the calendar year, e.g., January through June for the first half of the year. These reports shall be submitted by September 1 and March 1, respectively, each year. Supporting monitoring data shall be submitted in accordance with the "Semi-Annual Monitoring/Compliance Verification Report" condition in section 9.C. Torch shall include a written statement from the responsible official, which certifies the truth, accuracy, and completeness of the reports. [Re: *APCD Rules 1303.D.1, 1302.D.3, 1303.2.c*]

A.19 **Federally-enforceable Conditions.** Each federally enforceable condition in this permit shall be enforceable by the USEPA and members of the public. None of the conditions in the APCD-only enforceable section of this permit are federally enforceable or subject to the public/USEPA review [Re: *CAAA, § 502(b)(6), 40 CFR 70.6(b)*]

A.20 **Recordkeeping Requirements.** Torch shall maintain records of required monitoring information that include the following:

- (a) The date, place as defined in the permit, and time of sampling or measurements;
- (b) The date(s) analyses were performed;
- (c) The company or entity that performed the analyses;
- (d) The analytical techniques or methods used;
- (e) The results of such analyses; and
- (f) The operating conditions as existing at the time of sampling or measurement;

The records (electronic or hard copy), as well as all supporting information including calibration and maintenance records, shall be maintained for a minimum of five (5) years from date of initial entry by Torch and shall be made available to the APCD upon request. . [Re: *APCD Rule 1303.D.1.f, 40 CFR 70.6(a)(3)(ii)(A)*]

A.21 **Conditions for Permit Reopening.** The permit shall be reopened and revised for cause under any of the following circumstances:

- (a) Additional Requirements: If additional applicable requirements (e.g., NSPS or MACT) become applicable to the source which has an unexpired permit term of three (3) or more years, the permit shall be reopened. Such a reopening shall be completed no later than 18 months after promulgation of the applicable requirement. However, no such reopening is required if the effective date of the requirement is later than the date on which the permit is

due to expire, unless the original permit or any of its terms and conditions has been extended. All such re-openings shall be initiated only after a 30 day notice of intent to reopen the permit has been provided to Torch, except that a shorter notice may be given in case of an emergency.

- (b) Inaccurate Permit Provisions: If the APCD or the USEPA determines that the permit contains a material mistake or that inaccurate statements were made in establishing the emission standards or other terms or conditions of the permit, the permit shall be reopened. Such re-openings shall be made as soon as practicable.
- (c) Applicable Requirement: If the APCD or the USEPA determines that the permit must be revised or revoked to assure compliance with any applicable requirement including a federally enforceable requirement, the permit shall be reopened. Such re-openings shall be made as soon as practicable.

Administrative procedures to reopen and revise/revoke/reissue a permit shall follow the same procedures as apply to initial permit issuance. Re-openings shall affect only those parts of the permit for which cause to reopen exists. If the permit is reopened, and revised, it will be reissued with the expiration date that was listed in the permit before the re-opening.

[Re: 40 CFR 70.7(f), 40 CFR 70.6(a)]

- A.22 **Oil & Natural Gas Production MACT – Applicability Notification.** Torch will submit to the USEPA its ‘Initial Notice of Applicability’ of 40 CFR 63: Subpart HH, (Oil & Gas Production MACT), prior to June 17, 2000; and, will comply with the requirements of this Subpart, if it is applicable, by 6/17/2002.

[Re: 40 CFR 63, Subpart HH]

- A.23 **Credible Evidence.** For the purposes of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any standard in this permit, nothing in the permit shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test had been performed.

[Ref: CAAA, Section 113(a)]

9.B. Generic Conditions

The generic conditions listed below apply to all emission units, regardless of their category or emission rates. These conditions are federally enforceable. Compliance with these requirements is discussed in Section 3. In case of a discrepancy between the wording of a condition and the applicable federal or APCD rule(s), the wording of the rule shall control.

- B.1 **Circumvention (Rule 301).** A person shall not build, erect, install, or use any article, machine, equipment or other contrivance, the use of which, without resulting in a reduction in the total release of air contaminants to the atmosphere, reduces or conceals an emission which would otherwise constitute a violation of Division 26 (Air Resources) of the Health and Safety Code of the State of California or of these Rules and Regulations. This Rule shall not apply to cases in which the only violation involved is of Section 41700 of the Health and Safety Code of the State of California, or of APCD Rule 303. [Re: APCD Rule 301]

- B.2 **Visible Emissions (Rule 302).** Torch shall not discharge into the atmosphere from any single source of emission any air contaminants for a period or periods aggregating more than three minutes in any one hour which is:

- (a) As dark or darker in shade as that designated as No. 1 on the Ringelmann Chart, as published by the United States Bureau of Mines, or
- (b) Of such opacity as to obscure an observer's view to a degree equal to or greater than does smoke described in subsection B.2.(a) above.

Compliance shall be determined by APCD staff certified in visual emission evaluations. [Re: APCD Rule 302].

- B.3 **PM Concentration - South Zone (Rule 305).** Torch shall not discharge into the atmosphere, from any source, particulate matter in excess of the concentrations listed in Table 305(a) of Rule 305. [Re: APCD Rule 305]
- B.4 **Specific Contaminants (Rule 309).** Torch shall not discharge into the atmosphere from any single source sulfur compounds, carbon monoxide and combustion contaminants in excess of the standards listed in Sections A and G of Rule 309. [Re: APCD Rule 309].
- B.5 **Odorous Organic Sulfides (Rule 310).** Torch shall not discharge into atmosphere H₂S and organic sulfides that result in a ground level impact beyond the Torch property boundary in excess of 0.06 ppmv averaged over 3 minutes or 0.03 ppmv averaged over 1 hour. [Re: APCD Rule 310]
- B.6 **Sulfur Content of Fuels (Rule 311).** Torch shall not burn fuels with a sulfur content in excess of 0.5% (by weight) for liquid fuels and 239 ppmvd or 15 gr/scf (calculated as H₂S) for gaseous fuel. Compliance with this condition shall be based on annual measurements of the fuel gas using (Draeger tubes, ASTM, or other APCD-approved) methods and diesel fuel billing records or other data showing the certified sulfur content for each shipment. *Torch must also provide data to the APCD showing the sulfur content of its produced gas during 1998 and 1999, as obtained periodically by Torch and showing less than 4 ppm H₂S content.* [Re: APCD Rule 311]
- B.7 **Organic Solvents (Rule 317).** Torch shall comply with the emission standards listed in Section B of Rule 317. Compliance with this condition shall be based on Torch's compliance with Condition C.7 of this permit. [Re: APCD Rule 317]
- B.8 **Metal Surface Coating Thinner and Reducer (Rule 322).** The use of photochemically reactive solvents as thinners or reducers in metal surface coatings is prohibited. Compliance with this condition shall be based on Torch's compliance with Condition C.7 of this permit and facility inspections. [Re: APCD Rule 322]
- B.9 **Architectural Coatings (Rule 323).** Torch shall comply with the emission standards listed in Section D of Rule 323 as well as the Administrative requirements listed in Section F of Rule 323. Compliance with this condition shall be based on Torch's compliance with Condition C.7 of this permit and facility inspections. [Re: APCD Rules 323, 317, 322, 324]
- B.10 **Disposal and Evaporation of Solvents (Rule 324).** Torch shall not dispose through atmospheric evaporation of more than one and a half gallons of any photochemically reactive solvent per day. Compliance with this condition shall be based on Torch's compliance with Condition C.7 of this permit and facility inspections. [Re: APCD Rule 324]
- B.11 **Equipment Replacements.** Pursuant to Rule 202.D.9, a permit shall not be required for equivalent routine replacement in whole or in part of any equipment where a Permit to Operate had previously been granted under Rule 201, providing emissions are not increased and there is no potential for violating any ambient air quality standard. An equivalent piece of equipment has a Potential to Emit, operating design capacity or actual demonstrated capacity less than or equal to that of the original piece of equipment, and is subject to the same limitations and permit conditions as the equipment being replaced. The owner or operator shall notify the District within 30 days of an equivalent routine replacement, unless the replacement equipment is identical as to make

and model, and routine in which case notification is not required. This provision shall not grant any exemption from New Source Performance Standards.

9.C Equipment Specific Conditions

This section includes non generic federally-enforceable conditions, including emissions and operations limits; monitoring, recordkeeping and reporting are included in this section for each specific equipment group. This section may also contain other non-generic conditions.

C.1 Internal Combustion Engines. The following equipment are included in this emissions unit category:

ID No.	Name
8006-01-1	North (25 ton) Pedestal Crane (230 bhp, DD 6-71)
8006-02-1	South (15-ton) Pedestal Crane (109 bhp, DD 3-71)

- (a) Emission Limits: Mass emissions from the North (25-ton) and South (15-ton) crane IC engines listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. In addition, the following specific emission limits apply:

North (25-ton) Crane Engine - Controlled emissions of NO_x from the North (25-ton) crane engine shall not exceed either 8.4 g/bhp-hr or 797 ppmv at 15 percent oxygen. Compliance shall be based on quarterly inspections and biennial source testing according to Table 4.1 and Section (c) below (or more frequent testing, as determined by the APCO, if quarterly portable NO_x analyzer results show potential exceedances of the standard).

- (b) Operational Limits: The following operational limits apply to all the IC engines:

- (i) *Liquid Fuel Sulfur Limit* - Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.20 weight percent as determined by APCD-approved ASTM methods.
 - (ii) *Operating Limits* - Torch shall comply with the following operating limits:
 - The North (25-ton) crane engine shall not use more than: 319 gallons per day; 6,638 gallons per quarter; 13,275 gallons per year of diesel fuel.
 - The South (15-ton) crane engine shall not use more than: 156 gallons per day; 646 gallons per quarter; 1,293 gallons per year of diesel fuel.
 - The South (15-ton) crane shall operate no more than 200 hours per year.
 - (iii) *South Crane IC Engine Use* - The diesel-fired IC engine driving the South crane shall only be operated for no more than 200 hours per calendar year each. Torch shall install, operate and properly maintain a dedicated non-resettable elapsed-time meter on this engine.
 - (iv) *Engine Identification and Maintenance* - Each IC engine shall be identified with a permanently-affixed plate, tag or marking, referencing either: (i) the IC engine's make, model, serial number, rated BHP and corresponding RPM; or (ii) the operator's unique tag number. The tag shall be made accessible and legible to facilitate APCD inspection of the IC engine.
- (c) Monitoring: The following source testing and periodic monitoring conditions apply to the North (25-ton) and South (15-ton) pedestal crane IC engines:
- (i) *Fuel/Hourly Use Meters* - Torch shall report individual crane engine hours of operation utilizing a District-approved elapsed time meter ⁶. A monthly log shall be maintained that records the fuel usage (or hours of operation) of each engine.
 - (ii) *Inspection and Maintenance Plan (I&M Plan)* - Torch shall implement quarterly inspections on the North (25-ton) crane engine according to the APCD-approved Engine Inspection and Maintenance Plan consistent

⁶ The hours of operation, along with the engine horsepower rating and BSFC data as listed in Table 5.1-1 of this permit, a fuel correction factor of 1.06, and a high heating value of 138,200 Btu/gal will be used to determine the number of gallons of fuel consumed per time period.

with the requirements of Rule 333, Section E. This Plan, and any subsequent APCD-approved revisions, is incorporated by reference as an enforceable part of this permit.

- (iii) **Source Testing** - For the North (25-ton) crane engine Torch shall perform source testing of air emissions and process parameters listed in Table 4.1 (Source Test Requirements) in accordance with the requirements of Rule 333, Section G. The Source Testing permit condition below shall be adhered to.
 - (iv) **Fuel Data** - Torch shall maintain documentation of the sulfur content (as determined by APCD-approved ASTM methods) of each fuel shipment as certified in the fuel suppliers billing vouchers. *(semi-annual statement(s) from all fuel suppliers certifying the fuel supplied as meeting the CARB's low-sulfur diesel limit are also acceptable).*
- (d) **Recordkeeping:** Torch shall keep the required logs, as applicable to this permit, which demonstrate compliance with emission limits, operation limits and monitoring requirements above. All logs shall be available to the APCD upon request. Written information (logs) shall include:
- (i) The hours of operation for the South (15-ton) crane (by ID number). The log shall detail the number of operating hours on each day the engine is operated and the cumulative total quarterly and annual hours.
 - (ii) The sulfur content (as determined by APCD-approved ASTM methods) of each fuel shipment as certified in the fuel suppliers billing vouchers. *(semi-annual statement(s) from all fuel suppliers certifying the fuel supplied as meeting the CARB's low-sulfur diesel limit are also acceptable).* On an annual basis, the heating value of the diesel fuel (Btu/gal) shall be recorded. *(annual statements from all fuel suppliers, certifying the HHV of the fuel supplied, are also acceptable).* Any billing vouchers shall be attached to the log.
 - (iii) IC engine operations logs, including quarterly inspection results, consistent with the requirements of Rule 333.H.
 - (iv) If an operator's tag number is used in lieu of an IC engine identification plate, documentation which references the operator's unique IC engine ID number to a list containing the make, model, serial number, rated maximum BHP and the corresponding RPM.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6)

C.2 **Combustion Equipment - Flare.** The following equipment are included in this emissions unit category:

ID No.	Name
8006-15-1/4	Flare Relief System; 2,500 MMBtu/hr

- (a) **Emission Limits:** Mass emissions from the flare relief system listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** The following operational limits apply:
 - (i) **Flaring Volumes** - Flaring volumes from the purge and pilot, planned continuous, planned intermittent (other) and unplanned events shall not exceed the volumes in Table 5.1-1.
 - (ii) **Flare Fuel Gas Sulfur Limit** - The sulfur content of produced gas combusted during planned flaring events shall not exceed 15 gr/100 scf (239 ppmv) total sulfur calculated as hydrogen sulfide at standard conditions. Planned flaring is defined in APCD Rule 359. Compliance

shall be based on annual lab analyses. Torch shall perform additional testing of the sulfur content, using approved test methods, as requested by the APCD. Torch shall submit the lab analyses reports to the APCD.

- (iii) *Use of Propane as Flare Fuel Gas* - Propane may be used as an auxiliary fuel to the flare purge and pilot fuel gas on a temporary basis only during times when the supply of produced gas becomes disabled. The propane shall meet Gas Processors Association specifications for propane or HD-5 and shall have a total sulfur content no greater than 15 gr/100 scf (239 ppmv). Torch shall record in a log each usage of propane in a APCD-approved format and shall maintain documentation of the sulfur content of each fuel shipment as certified in the fuel suppliers billing vouchers.

(c) **Monitoring:** The following monitoring conditions apply to the flare relief system:

- (i) *Flare Volumes* - The volumes of gas flared shall be monitored by use of the APCD-approved flare header flow meter. The meter shall be operated consistent with Torch's *Process Monitor Calibration and Maintenance Plan*.
- (ii) *Sulfur Content* - The total sulfur content of produced gas combusted during flaring events shall be measured on an annual basis using APCD-approved ASTM methods. Torch shall perform additional testing of the sulfur content, using approved test methods, as requested by the APCD. Torch shall submit the lab analyses reports to the APCD.

(d) **Recordkeeping:** The following recordkeeping conditions apply to the flare relief system:

- (i) *Flare Volumes* - All flaring events shall be recorded in a log. The log shall include: date; duration of flaring events (start and stop times); quantity of gas flared; reason for flaring events; and the type of event (e.g., planned or unplanned).
- (ii) *Sulfur Content* - A log of the total sulfur content of produced gas combusted during flaring events shall be maintained.
- (iii) *Propane as Flare Fuel Gas* - Torch shall record in a log each usage of propane in a APCD-approved format and shall maintain documentation of the sulfur content of each fuel shipment as certified in the fuel suppliers billing vouchers.

(e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.

(Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6)

C.3 **Fugitive Hydrocarbon Emissions Components.** The following equipment are included in this emissions unit category:

ID No.	Name
<i>Gas/Light Liquid Service Components</i>	
8006-08-01	Valves/Connections/Other – Controlled (5,666 <i>comp-leak-paths</i>)
8006-08-02	Valves/Connections/Other – Uncontrolled (42 <i>comp-leak-paths</i>)
<i>Oil Service Components</i>	
8006-07-01	Valves/Connections/Other – Controlled (5,881 <i>comp-leak-paths</i>)
8006-07-02	Valves/Connections/Other – Uncontrolled(4 <i>comp-leak-paths</i>)

(a) **Emission Limits:** Mass emissions from the gas/light liquid service and oil service components listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.

- (b) **Operational Limits:** Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 331.D and E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition Torch shall meet the following requirement:
- (i) *VRS Use* - The vapor recovery/gas collection (VRGC) system shall be in operation when the equipment connected to the VRGC system at the facility is in use. The VRGC system includes piping, valves, and flanges associated with the VRGC system. The VRGC system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
 - (ii) *I&M Program* - The APCD-approved I&M Plan for Platform C shall be implemented for the life of the project. The Plan, and any subsequent APCD approved revisions, is incorporated by reference as an enforceable part of this permit.
 - (iii) *Leak-Path Count* - The total leak-path component count listed in Torch's most recent I&M component leak-path inventory shall not exceed the total leak-path component count listed in Table 5.1-1 by more than five percent. This five percent range is to allow for minor differences due to component counting methods and does not constitute allowable emissions growth due to the addition of new equipment.
 - (iv) *Venting* - All routine venting of hydrocarbons shall be routed to either the sales compressor, flare header, injection well or other APCD-approved control device.
- (c) **Monitoring:** The equipment listed in this section are subject to all the monitoring requirements listed in APCD Rule 331.F. The test methods in Rule 331.H shall be used, when applicable.
- (d) **Recordkeeping:** All inspection and repair records shall be retained at the source for a minimum of five years. The equipment listed in this section are subject to all the recordkeeping requirements listed in APCD Rule 331.G. In addition, Torch shall:
- I&M Log* - Torch shall record in a log the following: a record of leaking components found (including name, location, type of component, date of leak detection, the ppmv reading, date of repair attempt, method of detection, date of re-inspection and ppmv reading after leak is repaired); a record of the total components inspected and the total number and percentage found leaking by component type; a record of leaks from critical components; a record of leaks from components that incur five repair actions within a continuous 12-month period; and, a record of component repair actions including dates of component re-inspections.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(*Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6*)

C.4 **Crew and Supply Boats.** The following equipment are included in this emissions category:

ID No.	Name
8006-20-1	Crew Boat Main Engines – Controlled
8006-20-2	Crew Boat Main Engines – Uncontrolled
8006-21-1	Crew Boat Auxiliary Engines
8006-16-1	Supply Boat Main Engines – Controlled
8006-16-2	Supply Boat Main Engines – Uncontrolled
8006-17-1	Supply Boat Auxiliary Engines
8006-18-1	Supply Boat Bow Thrusters
8006-19-1	Emergency Response Boat

- (a) Emission Limits: Mass emissions from the crew, supply and emergency boats listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4. In addition:
- (i) *NO_x Emissions* - Controlled emissions of NO_x from each diesel fired main engine in each controlled supply boat shall not exceed 247 lb./1000 gallons (5.48 g/bhp-hr). Emissions of NO_x from each diesel fired main engine in each controlled crew boat shall not exceed 337 lb./1000 gallons (8.4 g/bhp-hr). Compliance shall be based on annual source testing consistent with the requirements listed in Table 4.1 and permit Condition 25 of PTO 9112 (issued September 4, 1994). Spot charter crew boats, spot charter supply boats and emergency response (e.g., *Clean Seas*) boats are not required to comply with this controlled NO_x emission rate.
 - (ii) *Crew, Supply and Emergency Response Boat Stationary Source Maximum Permitted Emissions* - To more accurately define the Nuevo South County Offshore Stationary Source's annual potential-to-emit (which is used to determine fees for Air Quality Plans (Rule 210.F)), crew boat, supply boat (including spot charters) and emergency response boat usage, in aggregate, associated with OCS Platforms A, B, C, Henry and Hillhouse shall not exceed five (5) times the annual emission limits shown in Table 5.2. These limits apply to the crew boats, supply boats and emergency response boats separately.
- (b) Operational Limits: Operation of the equipment listed in this section shall not exceed the limits listed below. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.
- (i) The supply boat main engines shall not use more than: 1,400 gallons per day; 7,278 gallons per quarter; 14,556 gallons per year of diesel fuel.
 - (ii) The supply boat auxiliary engines (generator and bow thruster engines) shall not use more than: 205 gallons per day; 1,066 gallons per quarter; 2,131 gallons per year of diesel fuel.
 - (iii) The emergency response boat engines shall not use more than: 12,500 gallons per quarter; 50,000 gallons per year of diesel fuel. Torch's pro-rated allocation of allowable emergency response boat fuel usage shall not exceed: 1,137 gallons per quarter; 4,546 gallons per year of diesel fuel.
 - (iv) The crew boat main engines shall not use more than: 1,252 gallons per day; 18,776 gallons per quarter; 75,104 gallons per year of diesel fuel.
 - (v) The crew boat auxiliary engines shall not use more than: 105 gallons per day; 1,574 gallons per quarter; 6,295 gallons per year of diesel fuel.
 - (vi) *Crew, Supply and Emergency Response Boat Stationary Source Operational Limits* - To more accurately define the Nuevo South County Offshore Stationary Source's annual potential-to-emit (which is used to determine fees for Air Quality Plans (Rule 210.F)),

- crew boat, supply boat (including spot charters) and emergency response boat usage, in aggregate, associated with OCS Platforms A, B, C, Henry and Hillhouse shall not exceed five times the annual fuel use limits shown in items (i), (ii), (iii) and (iv) above. These limits apply to the crew boat main engines, crew boat auxiliary engines, supply boat main engines, supply boat auxiliary engines and emergency response boat engines separately.
- (vii) *Spot Charter Boat* - The number of allowable annual spot charter crew boat trips shall not exceed ten percent of the actual annual number of trips made by the controlled (i.e., primary) crew boat. The number of allowable annual spot charter supply boat trips shall not exceed ten percent of the actual annual number of trips made by the controlled (i.e., primary) supply boats. A trip is defined as any time the boat makes a trip from the port to the platform and back (i.e., a round trip).
- (viii) *New/Replacement Boats* – Torch may utilize any new/replacement project boat without the need for a permit revision if that boat meets the following conditions:
- (a) The main engines are of the same or less bhp rating; and
 - (b) The combined pounds per day potential to emit (PTE) of all auxiliary and bow thruster engines is the same or less than the sum of the pounds per day PTE for these engines as determined from the corresponding Table 5.1-3 emission line items of this permit.
 - (c) The NO_x, ROC, CO, PM and PM₁₀ emission factors are the same or less for the main and auxiliary engines. For the main engines, NO_x emissions must meet the 337 lb/1000 gallons emission standard.

The above criteria also apply to spot charter boats, except for the NO_x emission standard noted in (c) above. Any proposed new/replacement crew, supply or spot charter boat that does not meet the above requirements (a) - (c) shall first obtain a permit revision prior to operating the boat. The APCD may require manufacturer guarantees and emission source tests to verify this NO_x emission standard.

Torch shall revise the Boat Monitoring and Reporting Plan, obtain APCD approval of such revisions and implement the revised Plan prior to bringing any new/replacement boat into service, except for the use of spot charters. If a new spot charter is brought into service then Torch shall revise and resubmit the boat plan within thirty (30) calendar days after it is first brought into service. If the fuel metering and emissions computation procedures for a new spot charter are identical to a boat that is already addressed in the approved boat plan, a letter addendum stating this will suffice for the revision/re-submittal of the boat plan.

Prior to bringing the boat into service for the first time, Torch shall submit the information listed below to the APCD for any new/replacement crew and supply boat that meets the requirements set forth in (a) - (c) above, and for new spot charters that have been not been previously used on the Torch OCS Platforms project. For spot charters, this information shall be submitted within thirty (30) calendar days after the boat is first brought into service. Torch shall notify the APCD (via fax or E-mail) within three (3) calendar days after a new spot charter is first brought into operation. Any boat put into service that does not meet the requirements above, as determined by the APCD at any time, shall

immediately cease operations and all prior use of that boat shall be considered a violation of this permit.

- Boat description, including the type, size, name, engine descriptions and emission control equipment.
 - Engine manufacturers' data on the emission levels for the various engines and applicable engine specification curves.
 - A quantitative analysis using the operating and emission factor assumptions given in tables 5.1-1 and 5.1-2 of this permit that demonstrates criteria (b) above is met
 - Estimated fuel usage within 25-miles of Platform C
 - Any other information the APCD deems necessary to ensure the new boat will operate consistent with the analyses that form the basis for this permit.
- (ix) *Liquid Fuel Sulfur Limit* - Diesel fuel used by all IC engines shall have a sulfur content no greater than 0.20 weight percent as determined by APCD-approved ASTM methods.
- (c) Monitoring: Torch shall comply with the latest *Boat Monitoring and Reporting Plan* (as submitted on February 4, 2000 and subsequent APCD-approved updates). This revised Plan reflects the engines associated with the *M/V Santa Cruz*. Torch shall fully implement this Plan or its APCD-approved updates for the life of the project. The Plan requires non-resettable totalizing fuel meters and boat logs to verify points of departure and fuel use for each trip segment. Torch may propose alternative data collection methods that are equivalent in accuracy and reliability as part of the *Boat Monitoring and Reporting Plan*. The GPS (or equivalent) location equipment may be omitted since all the boat trips occur within 25-miles of the platform.
- The data collected shall demonstrate that the boats are being operated consistent with the emission assumptions used in the issuance of this operating permit. Fuel use for all the main engines must be collected while the boats are in transit from port to the platform. Spot charter boats shall, at a minimum, track total fuel usage on a per trip basis using APCD-approved procedures. Emergency response boats shall, at a minimum, track fuel usage on a quarterly basis using APCD-approved procedures. These data shall be submitted in an APCD-approved format to the APCD.
- (d) Recordkeeping: The following records shall be maintained in legible logs and shall be made available to the APCD upon request:
- (i) *Maintenance Logs* - Maintenance log summaries that include details on injector timing, setting adjustments, major engine overhauls, and routine engine maintenance. These logs and summaries shall be made available to the APCD upon request.
 - (ii) *Crew Boat Fuel Usage* - Daily, quarterly and annual fuel use for the crew boat main engines and auxiliary engines.
 - (iii) *Supply Boat Fuel Usage* - Daily, quarterly and annual fuel use for the supply boat main engines, generator engine and bow thruster engine.
 - (iv) *Emergency Response Boat Fuel Usage* - Total quarterly and annual fuel use for the emergency response boat and Platform C's allocation of that total.
 - (v) In addition to the recordkeeping requirements of Torch's approved *Boat Monitoring and Reporting Plan*, the following log shall be maintained and shall be provided to the APCD in the semi-annual Compliance Verification Reports:

- The number of boat trips made by the primary crew and supply boats, itemized by the date of the trip and the boat name.
- The number of boat trips made by the spot-charter crew and supply boats, itemized by the date of the trip and the boat name.

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.

[Re: APCD Rule 1303, PTO 9112, 40 CFR 70.6]

C.5 **Pigging Equipment.** The following equipment are included in this emissions category:

ID No.	Name
8006-28-1	Gas Pig Launcher
8006-29-1	Oil Pig Launcher

- (a) **Emission Limits:** Mass emissions from the gas and oil pig launchers and receivers listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** Operation of the equipment listed in this section shall conform to the requirements listed in APCD Rule 325.E. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit. In addition Torch shall meet the following requirement:
- (i) **Events** - The number oil and gas pig operations (events) shall not exceed the maximum operating schedule listed in Table 5.1-1. This will be verified by data from the pigging operations log kept by Torch.
 - (ii) **Pressure** - Prior to opening each gas or oil pig, the pressure in the pig shall not exceed 1 psig. For all pigging, this limit will be verified by a pressure gauge recorder at the VRU compressor inlet or by any other contrivance that provides the same accuracy and has been approved by the APCD prior to its installation.
 - (iii) **ROC/TOC Ratio** - Torch shall first purge and blanket the pig receivers/launchers with 'sales gas' used by Torch, before opening the hatches. The ROC/TOC ratio of this gas, by weight, shall not exceed 0.19, as measured quarterly by Torch.
 - (iv) **Openings** - Access openings to the pig launchers/receivers shall be kept closed at all times, except when a pipeline pig is being placed into or removed from the launcher/receiver.
- (c) **Monitoring:** see conditions (b) (i) and (b) (ii) above.
- (d) **Recordkeeping:** Torch shall record in a log each pigging operation. The log shall include the date and pigging unit used (e.g., oil or gas).

- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6)

C.6 **Sumps/Tanks/Separators.** The following equipment are included in this emissions category:

ID No.	Name
8006-22-1	Waste Oil Sump
8006-23-1	Skimmer Tank
8006-24-1	Wastewater Tank
8006-25-1	Portable Tank A
8006-26-1	Portable Tank B

- (a) **Emission Limits:** Mass emissions from the equipment listed above shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** All process operations from the equipment listed in this section shall meet the requirements of APCD Rule 325, Sections D, E, F and G. Compliance with these limits shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit.
- (i) **VRS Use** - The vapor recovery system shall be in operation when the equipment connected to the VRS system at the facility is in use. The VRS system includes piping, valves, and flanges associated with the VRS system. The VRS system shall be maintained and operated to minimize the release of emissions from all systems, including pressure relief valves and gauge hatches.
- (ii) **Vapor Recovery System Efficiency** - The VRS shall maintain a minimum efficiency of 90 percent (mass basis).
- (iii) **Portable Tanks A/B** - Portable Tanks A/B may be operated without the use of vapor recovery (as required by Sections D.1 and E of Rule) only if their use is exempt per the provisions of Rule 325 (Section B - Exemptions).
- c) **Monitoring:** The equipment listed in this section shall be subject to all the monitoring requirements of APCD Rule 325.H. The test methods outlined in APCD Rule 325.G shall be used, when applicable. In addition, Torch shall:
- (i) Analyze the process streams listed the *Process Stream Sampling and Analysis* permit condition below.
- (d) **Recordkeeping:** The equipment listed in this section is subject to all the recordkeeping requirements listed in APCD Rule 325.F. In addition, Torch shall maintain logs for the information listed below. These logs shall be made available to the APCD upon request:
- (i) On a monthly basis, the total oil emulsion and produced gas production along with the number of days per month of production

- (ii) Process stream analyses data as required from the Process Stream Sampling and Analysis permit condition.
 - (iii) On a daily basis, the amount of oily water processed in each oil/water separator in units of gallons.
 - (iv) On an as-used basis, the usage of the two portable tanks on the platform. The log shall include the throughput and total volume of material stored in the tanks, the type of material stored in the tanks, dates that the tanks were in use, and any other reasonable data required by the APCD to determine emissions from the portable tanks. In addition, Torch shall maintain documentation that demonstrates that each use of the tank(s) is exempt from the use of vapor recovery per Rule 325.B. The portable tanks shall not be used for primary separation or storage of crude oil.
- (e) **Reporting:** On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
(Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6)

C.7 **Solvent Usage.** The following equipment are included in this emissions unit category:

ID No.	Name
8006-12-1	Cleaning/Degreasing

- (a) **Emission Limits:** Mass emissions from the solvent usage shall not exceed the limits listed in Tables 5.1-3 and 5.1-4.
- (b) **Operational Limits:** Use of solvents for cleaning/degreasing shall conform to the requirements of APCD Rules 317, 322, 323 and 324. Compliance with these rules shall be assessed through compliance with the monitoring, recordkeeping and reporting conditions in this permit and facility inspections.
 - (i) *Containers* - Vessels or containers used for storing materials containing organic solvents shall be kept closed unless adding to or removing material from the vessel or container.
 - (ii) *Materials* - All materials that have been soaked with cleanup solvents shall be stored, when not in use, in closed containers that are equipped with tight seals.
 - (iii) *Solvent Leaks* - Solvent leaks shall be minimized to the maximum extent feasible or the solvent shall be removed to a sealed container and the equipment taken out of service until repaired. A solvent leak is defined as either the flow of three liquid drops per minute or a discernable continuous flow of solvent.
 - (iv) *Reclamation Plan* - Torch may submit a Plan to the APCD for the disposal of any reclaimed solvent. If the Plan is approved by the APCD, all solvent disposed of pursuant to the Plan will not be assumed to have evaporated as emissions into the air and, therefore, will not be counted as emissions from the source. Torch shall obtain APCD approval of the procedures used for such a disposal Plan. The Plan shall detail all procedures used for

collecting, storing and transporting the reclaimed solvent. Further, the ultimate fate of these reclaimed solvents must be stated in the Plan.

- (c) Monitoring: none
 - (d) Recordkeeping: Torch shall record in a log the following on a monthly basis for each solvent used: amount used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed for APCD-approved disposal; whether the solvent is photochemically reactive; and, the resulting emissions to the atmosphere in units of pounds per month and pounds per day. Product sheets (MSDS or equivalent) detailing the constituents of all solvents shall be maintained in a readily accessible location on the platform.
 - (e) Reporting: On a semi-annual basis, a report detailing the previous six month's activities shall be provided to the APCD. The report must list all data required by the *Semi-Annual Compliance Verification Reports* condition of this permit.
[Re: APCD Rules 202, 333 and 1303, PTO 9110, 40 CFR 70.6]
- C.8 **Facility Throughput Limitations.** Platform C production shall be limited to a monthly average of 15,000 barrels of oil emulsion⁷ per day and 5 million standard cubic feet of produced gas per day. Torch shall record in a log the volumes of oil emulsion and gas produced and the actual number of days in production per month. The above limits are based on actual days of operation during the month. [Re: PTO 9112]
- C.9 **Produced Gas.** Torch shall direct all produced gases to the sales compressors, the flare header or other permitted control device when de-gassing, purging or blowing down any oil and gas well or tank, vessel or container that contains reactive organic compounds or reduced sulfur compounds due to activities that include, but are not limited to, process or equipment turnarounds, process upsets (e.g., well spikes), well blow down and MMS ordered safety tests. [Re: APCD Rules 325, 331, PTO 9112]
- C.10 **Diesel IC Engines - Particulate Matter Emissions.** To ensure compliance with APCD Rules 205.A, 302, 304, 309 and the California Health and Safety Code Section 41701, Torch shall implement manufacturer recommended operational and maintenance procedures to ensure that all project diesel-fired engines minimize particulate emissions. Torch shall implement their *IC Engine Particulate Matter Operation and Maintenance Plan* (12/20/94 and all APCD-approved updates thereof) for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules that Torch will implement. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgement shall be utilized. All project diesel-fired engines, regardless of exemption status, shall be included in this Plan. [Re: APCD Rules 205.A, 302, 305, 309, PTO 9112]
- C.11 **Abrasive Blasting Equipment.** All abrasive blasting activities performed on Platform C shall comply with the requirements of the California Administrative Code Title 17, Sub-Chapter 6, Sections 92000 through 92530. [Re: APCD Rules 303, PTO 9112]

⁷ Oil emulsion is defined as the total amount of crude oil and water produced from the wells.

C.12 **Process Monitoring Systems - Operation and Maintenance.** All platform process monitoring devices listed in Section 4.10 of this permit shall be properly operated and maintained according to manufacturer recommended specifications. Torch shall implement their *Process Monitor Calibration and Maintenance Plan* (12/20/94 and all APCD-approved updates thereof) for the life of the project. This Plan details the manufacturer recommended maintenance and calibration schedules. Where manufacturer guidance is not available, the recommendations of comparable equipment manufacturers and good engineering judgement is utilized. [Re: PTO 9112]

C.13 **Source Testing.** The following source testing provisions shall apply:

- (i) Torch shall conduct source testing of air emissions and process parameters listed in Section 4.11 and Table 4.1 of this Permit to Operate. More frequent source testing may be required if the equipment does not comply with permitted limitations or if other compliance problems, as determined by the APCO, occur. Source testing of the North (25-ton) crane engine shall be performed on a biennial schedule using June 1994 as the initial test date. The crane engine shall be loaded to the maximum safe load obtainable. Source testing of one crew boat and one supply boat shall occur on an annual basis beginning no later than September of 1995. The crew and supply boat main engines shall be tested at normal cruise speeds (approximately 70 percent of maximum engine load).
- (ii) Torch shall submit a written source test plan to the APCD for approval at least thirty (30) calendar days prior to initiation of each source test. The source test plan shall be prepared consistent with the APCD's *Source Test Procedures Manual* (revised May 1990 and any subsequent revisions). Torch shall obtain written APCD approval of the source test plan prior to commencement of source testing. The APCD shall be notified at least ten (10) calendar days prior to the start of source testing activity to arrange for a mutually agreeable source test date when APCD personnel may observe the test.
- (iii) Source test results shall be submitted to the APCD within forty-five (45) calendar days following the date of source test completion and shall be consistent with the requirements approved within the source test plan. Source test results shall demonstrate compliance with emission rates in Section 5 and applicable permit conditions. All APCD costs associated with the review and approval of all plans and reports and the witnessing of tests shall be paid by Torch as provided for by APCD Rule 210.
- (iv) Source test for an item of equipment shall be performed on the scheduled day of testing (the test day mutually agreed to) unless circumstances beyond the control of the operator prevent completion of the test on the scheduled day. Such circumstances include mechanical malfunction of the equipment to be tested, malfunction of the source test equipment, delays in source test contractor arrival and/or set-up, or unsafe conditions on site. Except in cases of an emergency, the operator shall seek and obtain APCD approval before deferring or discontinuing a scheduled test, or performing maintenance on the equipment item on the scheduled test day. If the test can not be completed on the scheduled day, then the test shall be rescheduled for another time with prior authorization by the APCD. Failing to perform the source test of an equipment item on the scheduled test day without a valid reason and without APCD's prior authorization, except in the case of an emergency, shall constitute a violation of this permit. If a test is postponed due to an

emergency, written documentation of the emergency event shall be submitted to the APCD by the close of the business day following the scheduled test day.
[Re: PTO 9112]

C.14 **Process Stream Sampling and Analysis.** Torch shall sample analyze the process streams listed in Section 4.11 of this permit according to the methods and frequency detailed in that Section. All process stream samples shall be taken according to APCD approved ASTM methods and must follow traceable chain of custody procedures. [Re: APCD Rules 325, 331, 333 PTO 9112]

C.15 **Recordkeeping.** All records and logs required by this permit and any applicable APCD, state or federal rule or regulation shall be maintained for a minimum of five calendar years from the date of information collection and log entry at the platform. These records or logs shall be readily accessible and be made available to the APCD upon request. [Re: APCD Rule 1303, PTO 9112, 40 CFR 70.6]

C.16 **Semi-Annual Monitoring/Compliance Verification Reports.** Twice a year, Torch shall submit a monitoring and compliance verification report to the APCD. Each report shall be used to verify compliance with the prior two calendar quarters. The first report shall cover calendar quarters 1 and 2 (January through June) and shall be submitted no later than September 1. The second report shall cover calendar quarters 3 and 4 (July through December) and shall be submitted no later than March 1. Each report shall contain information necessary to verify compliance with the emission limits and other requirements of this permit. These reports shall be in a format approved by the APCD. All logs and other basic source data not included in the report shall be available to the APCD upon request. The second report shall also include an annual report for the prior four quarters. Pursuant to Rule 212, the annual report shall include a completed *APCD Annual Emissions Inventory* questionnaire. The report shall include the following information:

(a) *Internal Combustion Engines.*

- (1) The daily, quarterly and annual fuel use/operating hours data for each pedestal crane engine in units of gallons/hours.
- (2) The monthly and cumulative annual hours of operation for the emergency electrical generator (by ID number).
- (3) Results of the quarterly readings of the portable NO_x analyzer for the North Crane IC engine.
- (4) Total sulfur content of each diesel fuel shipment. (*semi-annual statements from all fuel suppliers certifying the fuel supplied as meeting the CARB's low sulfur diesel limit are also acceptable*).
- (5) Documentation of any equivalent routine IC engine replacement.
- (6) Summary results of all compliance emission source testing performed.

(b) *Flare.*

- (1) The highest total sulfur content and hydrogen sulfide content observed annually in the flare header.
- (2) The total sulfur content of flare purge and pilot fuel gas as measured annually.
- (3) The volumes of gas (including natural gas and propane, if any) combusted and resultant mass emissions for each flare category (i.e., Purge/Pilot; Planned Continuous; Planned Other; Unplanned Other), shall be presented as a cumulative summary for each day, quarter and year.

(c) *Fugitive Hydrocarbons.* Rule 331/Enhanced Monitoring fugitive hydrocarbon I&M program data (on a quarterly basis):

- (1) Inspection summary.
- (2) Record of leaking components.
- (3) Record of leaks from critical components.

- (4) Record of leaks from components that incur five repair actions within a continuous 12-month period.
- (5) Record of component repair actions including dates of component re-inspections.
- (6) An updated FHC I&M inventory due to change in component list or diagrams.
- (7) Listing of components installed as BACT under APCD Rule 331 as approved by the APCD.

(d) *Crew and Supply Boats.*

- (1) Daily, quarterly and annual fuel use for the crew boat main engines and auxiliary engines while operating within 25 miles of Platform C, itemized by regular crew boat (controlled ICE) usage and spot charter/emergency response boat (uncontrolled ICE) usage.
 - (2) Daily, quarterly and annual fuel use for the supply boat main engines and auxiliary engines (including the bow thruster engine) while operating within 25 miles of Platform C, , itemized by regular crew boat (controlled ICE) usage and spot charter/emergency response boat (uncontrolled ICE) usage.
 - (3) The sulfur content of each delivery of diesel fuel used by the crew and supply boats. (*semi-annual statements from all fuel suppliers certifying the fuel supplied as meeting the CARB's low sulfur diesel limit are also acceptable*).
 - (4) Information regarding any new project boats servicing Nuevo's Platform A, as detailed in Permit Condition 9.C.4.(e) above.
 - (5) If requested by the APCD, maintenance log summaries that include details on injector timing, setting adjustments, major engine overhauls, and routine engine tune-ups. For spot charters this shall be provided as available.
 - (6) The number of boat trips made (a) by the crew and supply boats and (b) by the spot charter (crew and supply) boats, both itemized by the trip dates and the boat names.
- (c) Summary results of all compliance emission source testing performed.

(e) *Pigging.*

- (1) For each pig receiver and launcher, the number of pigging events per day, quarter and year.
- (2) The ROC/TOC ratio of the 'sales gas' used to purge and blanket each receiver and launcher prior to hatch opening, as measured quarterly.

(d) *Tanks/Sumps/Separators.*

- (e) The usage of the two portable tanks including the throughput and total volume of material stored in the tanks, the type of material stored in the tanks and the dates the tanks were in use.
- (f) *Solvent Usage.* On a monthly basis: the amount of solvent used; the percentage of ROC by weight (as applied); the solvent density; the amount of solvent reclaimed; whether the solvent is photochemically reactive; and, the resulting emissions of ROC and photochemically reactive solvents to the atmosphere in units of pounds per month.

(g) *General Reporting Requirements.*

- (h) On a monthly basis, the total oil emulsion and produced gas production along with the number of days of production;
- (i) On quarterly basis, the emissions from each permitted emission unit for each criteria pollutant (shall include tons per quarter **totals of all pollutants** by each emission unit). The third/fourth quarter report shall include tons per year totals for all pollutants (by each emission unit).
- (j) On quarterly basis, the emissions from each exempt emission unit for each criteria pollutant (the annual report shall include the annual ROC and NO_x emissions from all permit exempt activities).
- (k) Breakdowns and variances reported/obtained per Regulation V along with the excess emissions that accompanied each occurrence
- (l) A summary of each and every occurrence of non-compliance with the provisions of this permit, applicable APCD rules, and any other applicable air quality requirement.

- (m) The produced gas and produced oil process stream analyses as required by condition 9.C.14 of this permit (process stream analyses to be performed per Section 4.11)
[Re: PTO 9110, ATC 9504, ATC 9519, ATC 9746, ATC/PTO 10088, 40 CFR 70.6]

- C.17 **Permitted Equipment.** Only those equipment items listed in Attachment 10.6 are covered by the requirements of this permit and APCD Rule 201.B. [Re: APCD Rule 1303, PTO 9112]
- C.18 **Mass Emission Limitations.** Emissions for the entire facility shall not exceed the total limits listed in Table 5.2. [Re: APCD Rule 1303, PTO 9112]

9.D APCD-Only Conditions

The following section lists permit conditions that are not enforceable by the USEPA or the public. However, these conditions are enforceable by the APCD and the State of California. These conditions are issued pursuant to APCD Rule 206 (*Conditional Approval of Authority to Construct or Permit to Operate*), which states that the Control Officer may issue an operating permit subject to specified conditions. Permit conditions have been determined as being necessary for this permit to ensure that operation of the facility complies with all applicable local and state air quality rules, regulations and laws. Failure to comply with any condition specified pursuant to the provisions of Rule 206 shall be a violation of that rule, this permit, as well as any applicable section of the California Health & Safety Code.

- D.1 **Nuisance (Rule 303).** No pollutant emissions from any source at Torch shall create nuisance conditions. No operations shall endanger health, safety or comfort, nor shall they damage any property or business [APCD Rule 303].

AIR POLLUTION CONTROL OFFICER

Date

NOTES:

- (a) This permit supersedes all previous "APCD-only Permits to Operate" issued for Platform C; however, each ATC issued to Platform C remains in force.
- (b) APCD Permit Reevaluation Due Date: March 22, 2003
- (c) Part 70 Operating Permit Expiration Date: March 22, 2005

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10.0 Attachments

10.1 *Emission Calculation Documentation*

10.2 *Emission Calculation Spreadsheets*

10.3 *Fee Calculations*

10.4 *IDS Database Emission Tables*

10.5 *Part 70 Operating Permit Certified Compliance Plan*

10.6 *Equipment List*

10.7 *Exempt/Insignificant Equipment List*

10.1 EMISSION CALCULATION DOCUMENTATION

PLATFORM C

This attachment contains all relevant emission calculation documentation used for the emission tables in Section 5. Refer to Section 4 for the general equations. The letters A-H in the references below correspond to the same in Tables 5.1-1 and 5.1-2.

Reference A - Crane Engines

- The maximum operating schedule is in units of hours.
- The default diesel fuel #2 characteristics are:
 - density = 7.043 lb/gal (30° API)
 - LHV = 18,410 Btu/lb (129,700 Btu/gal)
 - HHV = 19,620 Btu/lb (138,200 Btu/gal)
- North (25-ton) crane BSFC = 7,272 Btu/bhp-hr
energy based value using LHV
Detroit Diesel 6V-71 engine specification basis = 0.395 lb/bhp-hr
- South (15-ton) crane BSFC = 7,732 Btu/bhp-hr
energy based value using LHV
Detroit Diesel 3-71 engine specification basis = 0.420 lb/bhp-hr
- Emission factors units (lb/MMBtu) are based on HHV.
- LCF (conversion of LHV to HHV) value of 6 percent used.
- NO_x emission factor consistent with Rule 333, *i.e.*, 8.4 g/bhp-hr.
$$EF_{lb/MMBtu} = [(8.4 \text{ g/bhp-hr}) H (10^6/MM)] \cdot [(453.6 \text{ g/lb}) H (BSFC) H (1.06)]$$
- ROC, CO and PM emission factors based on USEPA AP-42, Table 3.3-1 (7/93).
- SO_x emissions based on mass balance:
$$SO_x \text{ (as } SO_2) = (\%S) H (\rho_{oil}) \cdot (20,000) / (HHV)$$
- PM₁₀:PM ratio = 1.0 (per AP-42); ROC:TOC ratio = 0.8378 (per APCD)
- Crane engine operational limits: General Equation

$$Q = (BSFC) \cdot (bhp) H (LCF) \cdot (\text{hours/time period}) / (HHV, \text{ Btu/gal})$$

North (25-ton) crane Engine

$$\begin{aligned} Q &= (7272 \text{ Btu/bhp-hr}) \cdot (238 \text{ bhp}) \cdot (1.06) \cdot (24 \text{ hours/day}) / (138,200 \text{ Btu/gal}) \\ &= 319 \text{ gallons per day} \end{aligned}$$

$$Q = (7272 \text{ Btu/bhp-hr}) * (238 \text{ bhp}) * (1.06) * (500 \text{ hours/qtr}) / (138,200 \text{ Btu/gal})$$

$$= 6,638 \text{ gallons per quarter}$$

$$Q = (7272 \text{ Btu/bhp-hr}) * (238 \text{ bhp}) * (1.06) * (1000 \text{ hours/yr}) / (138,200 \text{ Btu/gal})$$

$$= 13,275 \text{ gallons per year}$$

South (15-ton) crane Engine

$$Q = (7732 \text{ Btu/bhp-hr}) * (109 \text{ bhp}) * (1.06) * (24 \text{ hours/day}) / (138,200 \text{ Btu/gal})$$

$$= 156 \text{ gallons per day}$$

$$Q = (7732 \text{ Btu/bhp-hr}) * (109 \text{ bhp}) * (1.06) * (100 \text{ hours/qtr}) / (138,200 \text{ Btu/gal})$$

$$= 646 \text{ gallons per quarter}$$

$$Q = (7732 \text{ Btu/bhp-hr}) * (109 \text{ bhp}) * (1.06) * (200 \text{ hours/yr}) / (138,200 \text{ Btu/gal})$$

$$= 1,293 \text{ gallons per year}$$

Reference B - Combustion Flare

- The maximum operating schedule for the purge/pilot gas and planned continuous flaring is in units of hours.
- The maximum operating schedule for the planned other and unplanned flaring is in units of percentage of annual usage.
- Purge and pilot flow rate based on Torch application.
- HHV = 1100 Btu/scf for all flare gas (per Torch application).
- Planned continuous flaring value based on one half the minimum detection limit of the flare meter.
 Flare meter: Daniels 8-inch orifice meter
 Minimum detection limit: 0.0075 MMscfd (APCD assumption based on 0.25 scf/sec flow rate). Value agreed to between Torch and the APCD.
 Maximum detection limit: 10.0 MMscfd
- Planned intermittent (other) and unplanned flaring volumes based on Torch/APCD agreed to values as contained in the draft PTO.
- Planned intermittent (other) and unplanned flaring events not calculated for short-term events per APCD policy.
- The same emission factors are used for all flaring scenarios, except SO_x.
- NO_x, ROC and CO emission factors based on USEPA AP-42, Table 11.5-1 (9/91).
- PM emission factor based on SBCAPCD Flare Study - Phase I Report, Table 3.1.1 (7/91).

- ROC:TOC ratio = 0.41 per APCD; PM₁₀:PM ratio = 1.0
- SO_x emissions based on mass balance:

$$\text{SO}_x \text{ (as SO}_2\text{)} = (0.169) * (\text{ppmv S}) / (\text{HHV})$$

Reference C - Fugitive Components

- The maximum operating schedule is in units of hours.
- All safe to monitor components are credited an 80 percent control efficiency. Unsafe to monitor components (as defined in Rule 331) are considered uncontrolled.
- The component leak path definition differs from the Rule 331 definition of a component. A typical leak path count for a valve would be equal to 4 (one valve stem, a bonnet connection and two flanges).
- Leak path counts and 'de minimis changes' updates are provided by applicant. The total count has been verified to be accurate within 5 percent of the APCD's P&ID and platform review/site checks. The latest de minimis update occurred on 12/19/97.
- Emission factors based on the SBCAPCD/Tecolote Report, *Modeling of Fugitive Hydrocarbon Emissions* (January 1986), Model B. These are, as follows:

Oil-side : $0.0133 * 0.33 = 0.0044 \text{ lb. ROC/day-clp -- unsafe/uncontrolled}$
 Gas side: $0.2230 * 0.33 = 0.0736 \text{ lb./day-clp -- unsafe/uncontrolled}$

Reference D - Supply Boat

- The maximum operating schedule is in units of hours.
- Supply boat engine data based on Rincon Marine's *M/V Santa Cruz*.
- Two 2,000 bhp main engines (i.e., 4,000 bhp), two 245 bhp auxiliary engines (i.e., 490 bhp) and one 515 bow thruster engine are utilized.
- Main engine load factor based on District *Crew and Supply Boat* study (6/87).
- Supply boat bow thruster engine only operates during maneuver mode.
- Supply boat generator engines provide half of total rated load, either with one engine at full load or both engines at half load.
- Total time supply boat operates per trip within 25 miles of platform is 11 hours. A trip includes time traveling to and from the platform, as well as time operating at the platform. Typical trip is: 8 hours cruise, 2 hours maneuver and 1 hour idle. Annual time based on $52/5 = 10.4$ trips. Quarterly based on $26/5 = 5.2$ trips. Spot charter boats add $11 * 10.4/10 = 11.4$ hours per year.
- Main engine emission factors are based only on cruise mode values.

- The break specific fuel consumption (BSFC) for the controlled main engines is 0.345 lb/bhp-hr. This value is from data supplied by Caterpillar for operation of each engine at 1,340 bhp. This bhp was used to select the BSFC because the engines are assumed to operate at 65% of full capacity during normal operations.
- The BSFC was converted from lb/hp-hr to gal/hp-hr by dividing the manufacturer's BSFC by 7.05 lb/gal, the density of diesel:

$$0.049 \text{ gal/hp-hr} = (0.345 \text{ lb/hp-hr}) / (7.05 \text{ lbs/gal})$$
- Supply boat main engines achieve a controlled NO_x emission rate of 5.48 g/bhp-hr through the use of Caterpillar 3516B diesel fired engines. The engines are electronically controlled, turbo-charged, and aftercooled. This emission factor equates to 247 lb/1000 gallons.

$$EF_{NO_x} = (5.48 \text{ g/bhp-hr}) / (0.049 \text{ gal/bhp-hr}) / (453.6 \text{ g/lb}) \times (1,000)$$
- Spot charter supply boat usage limited to 10 percent of actual annual controlled supply boat usage.
- Spot charter and Emergency Response vessels are normally uncontrolled for NO_x.
- Uncontrolled ROC and CO emission factors for the main engines are based on USEPA AP-42, Volume II, Table II-3.3 (1/75) {cruise factor, 2,000 bhp/engine}.
- Uncontrolled NO_x emissions from spot charter supply and emergency response boat main engines based on an emission rate of 14 g/bhp-hr. This emission factor equates to 561 lb/1000 gallons:

$$EF_{NO_x} = (14 \text{ g/bhp-hr}) / (0.055 \text{ gal/bhp-hr}) / (453.6 \text{ g/lb}) \times (1,000)$$
- PM emission factor for the main engines are based on *Kelly, et. al.* (1981).
- PM₁₀:PM ratio = 1.00 (per AP-42); ROC:TOC ratio = 1.0
- All SO_x emissions based on mass balance:

$$SO_x \text{ (as } SO_2) = (\%S) (\rho_{oil}) (20,000) / (HHV)$$
- Auxiliary and bow thruster engine emission factors (uncontrolled) are based on USEPA AP-42, Table 3.3-1 (7/93). Table emission factors converted to fuel basis using:

$$EF_{lb/1000 \text{ gal}} = (EF_{lb/MMBtu}) (19,300 \text{ Btu/lb}) (7.05 \text{ lb/gal}) / (1000)$$
- Spot charter engine set-up assumed to be equal to main supply boat.
- Emergency response vessel is permanently assigned to Platforms Henry, Hillhouse, A, B, C, Houchin, Hogan, Habitat, Hondo, Heritage, and Harmony. Vessel total bhp is 1,770 bhp. Short-term emissions from this vessel are not assessed. Long-term emissions are assessed equally amongst the eleven affected platforms.
- Emergency response vessel emissions calculated as an aggregate (main and auxiliary engines) using the uncontrolled supply boat emission factors. The long term hours of operating are back-calculated based on the fuel usage allocation for this platform of 4,546 gallons per year (50,000 gal/yr basis).

$$T_{yr} = (4,546 \text{ gal/yr}) / ((0.055 \text{ gal/bhp-hr}) (1,770 \text{ bhp}) (0.65)) = 72 \text{ hr/yr}$$
- Main and auxiliary engine operational limits: General Equation

$$Q = (\text{BSFC}) (\text{bhp}) (\text{hours/time period}) (\text{load factor})$$

Main engines:

$$Q = (0.049 \text{ gal/bhp-hr}) (4,000 \text{ bhp}) (11 \text{ hours/day}) (0.65)$$

= 1,400 gallons per day

Q = (0.049 gal/bhp-hr) (4,000 bhp) (57.2 hours/qtr) (0.65)
= 7,278 gallons per quarter

Q = (0.049 gal/bhp-hr) (4,000 bhp) (114.4 hours/yr) (0.65)
= 14,556 gallons per year

Auxiliary engines – Generators

Q = (0.055 gal/bhp-hr) (490 bhp) (11 hours/day) (0.50)
= 148 gallons per day

Q = (0.055 gal/bhp-hr) (490 bhp) (57.2 hours/qtr) (0.50)
= 771 gallons per quarter

Q = (0.055 gal/bhp-hr) (490 bhp) (114.4 hours/yr) (0.50)
= 1,542 gallons per year

Auxiliary engines - Bow Thruster

Q = (0.055 gal/bhp-hr) (515 bhp) (2 hours/day)
= 57 gallons per day

Q = (0.055 gal/bhp-hr) (515 bhp) (10.4 hours/qtr)
= 295 gallons per quarter

Q = (0.055 gal/bhp-hr) (515 bhp) (20.8 hours/yr)
= 589 gallons per year

Reference E - Crew Boat

- The maximum operating schedule is in units of hours.
- Crew boat engine data based on Tidewater Marine's M.V. ~~Ashton Tide~~ Roff Tide.
- Three 510 bhp main engines (i.e.; 1,530 bhp) and two 109 bhp auxiliary engines are utilized.
- Main engine load factor based on District *Crew and Supply Boat* study (6/87).
- Crew boat auxiliary engines operate at one-half of total rated load.
- Total time crew boat operates per trip within 25 miles of platform is 3.5 hours per platform. A trip includes time to, from and at the platform. Typical trip is: 2 hours cruise, 1 hour maneuver and 0.5 hour idle. Annual time based on $1,500/5 = 300$ trips. Quarterly based on $375/5 = 75$ trips. Spot charter boats add $3.5*300/10 = 105$ hours.
- Main engine emission factors are based only on cruise mode values.

- Crew boat main engines achieve a controlled NO_x emission rate of 8.4 g/bhp-hr through the use of turbo-charging, enhanced inter-cooling and 4E timing retard. This emission factor equates to 337 lb/1000 gallons.

$$EF_{NO_x} = (8.4 \text{ g/bhp-hr}) (0.055 \text{ gal/bhp-hr}) (453.6 \text{ g/lb}) H (1000)$$
- Spot charter crew boat usage limited to 10 percent of actual annual controlled crew boat usage.
- Spot charter vessels are normally uncontrolled for NO_x.
- Uncontrolled ROC and CO emission factors for the main engines are based on USEPA AP-42, Volume II, Table II-3.3 (1/75) {cruise factor, 500 bhp engine}.
- Uncontrolled NO_x emissions from spot charter crew boat main engines based on an emission rate of 14 g/bhp-hr. This emission factor equates to 561 lb/1000 gallons:

$$EF_{NO_x} = (14 \text{ g/bhp-hr}) (0.055 \text{ gal/bhp-hr}) (453.6 \text{ g/lb}) H (1000)$$
- PM emission factor for the main engines are based on *Kelly, et. al.* (1981).
- PM₁₀:PM ratio = 0.96; ROC:TOC ratio = 1.0
- All SO_x emissions based on mass balance:

$$SO_x \text{ (as SO}_2\text{)} = (\%S) * (\rho_{oil}) * (20,000) / (HHV)$$
- Auxiliary engine emission factors (uncontrolled) are based on USEPA AP-42, Table 3.3-1 (7/93). Table emission factors converted to fuel basis using:

$$EF_{lb/1000 \text{ gal}} = (EF_{lb/MMBtu}) * (19,300 \text{ Btu/lb}) * (7.05 \text{ lb/gal}) / (1000)$$
- Spot charter engine set-up (*i.e.*, engine type, size) assumed to be equal to main crew boat.
- Main and auxiliary engine operational limits: General Equation

$$Q = (BSFC) * (bhp) * (\text{hours/time period}) * (\text{load factor})$$

Main engines

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) * (1530 \text{ bhp}) * (17.5 \text{ hours/day}) * (0.85) \\ &= 1,252 \text{ gallons per day} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) * (1530 \text{ bhp}) * (262.5 \text{ hours/qtr}) * (0.85) \\ &= 18,776 \text{ gallons per quarter} \end{aligned}$$

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) * (1530 \text{ bhp}) * (1050 \text{ hours/yr}) * (0.85) \\ &= 75,104 \text{ gallons per year} \end{aligned}$$

Auxiliary engines - Generators

$$\begin{aligned} Q &= (0.055 \text{ gal/bhp-hr}) * (218 \text{ bhp}) * (17.5 \text{ hours/day}) * (0.50) \\ &= 105 \text{ gallons per day} \end{aligned}$$

$$Q = (0.055 \text{ gal/bhp-hr}) * (218 \text{ bhp}) * (262.5 \text{ hours/qtr}) * (0.50) \\ = 1,574 \text{ gallons per quarter}$$

$$Q = (0.055 \text{ gal/bhp-hr}) * (218 \text{ bhp}) * (1050 \text{ hours/yr}) * (0.50) \\ = 6,295 \text{ gallons per year}$$

Reference F - Pigging Equipment

☞ Maximum operating schedule is in units of events (e.g., **thrice per week/160 times per year** for oil launcher and **thrice per week/160 times per year** for gas launcher);

☞ The gas & oil launcher volumes, pressures, and temperatures based on file data;

☞ All vapors in the launcher is bled down to *either the well clean tank or the waste oil tank*; **all launchers and receivers are then purged and blanketed with 'sales gas' prior to opening the vessels to the atmosphere; The remaining vessel pressure is no greater than 1 psig, based on Torch's 5/7/97 and 8/19/97 stipulations to the APCD.** The temperatures of the remaining vapor in the vessels are as follows: (a) pig launchers temp. = 75°F, and (b) pig receivers temp. = 65°F (based on Torch application 9846 data)

☞ The $MW_{\text{gas}} = MW_{\text{oil}} = 23 \text{ lb./lb.-mol}$, since the launchers/receivers are purged and blanketed with sales gas in either cases (**Reference: Torch 5/7/97 and 8/19/97 letters**)

☞ Average ROC weight percent is = 18.94 % for gas launchers [**Reference: see Attached Field Test Data from OCS Platforms, submitted by Torch on 5/7/97 and revised on 8/19/97**]

☞ Average ROC weight percent is = 18.94 % for oil launchers [**Reference: see Attached Field Test Data from OCS Platforms, submitted by Torch on 5/7/97 and revised on 8/19/97**]

Pig vessel volume (V_{ves}) = 10.00 acf (all launchers), as indicated in Table 5.1-1 in the PTO.

☞ Density $\rho = (\text{pressure} \times MW) \div (R \times T)$, density of vapor remaining in the vessel (lbs. VOC/acf)

☞ Site-specific pigging emission factor $EF = (\rho \times \text{ROC weight \%})$, in (lb. ROC/acf-event) units

☞ $\rho_{\text{gas}} = \rho_{\text{oil}} = (15.7 * 23) \div (10.73 * 535) = 0.0629 \text{ lb./cu.ft}$, density of THC vapor remaining in vessel, i.e., 0.0629 lb./cubic feet TOC for oil/gas launchers;

$$EF = 0.0629 * 0.1894 = 0.0119 \text{ lb. of ROC/acf-event for oil/gas launchers.}$$

Reference G - Sumps/Tanks/Separators

- Maximum operating schedule is in units of hours.
- Emission calculation methodology for tanks and sumps based on the CARB/KVB report *Emissions Characteristics of Crude Oil Production Operations in California* (1/83).
- Calculations of tank and sump emissions are based on surface area of emissions unit as supplied by the applicant.

- All tanks and sumps are classified as secondary production and heavy oil service.
- All tanks, sumps, and separators except the skimmer tank, the waste oil sump and the wastewater tank, are connected to vapor recovery or flare. A control efficiency of 95% is assumed for all vessels except the three disconnected vessels (*control efficiency assumed to be zero*).
- Portable tanks are not connected to vapor recovery per Rule 325.B.1.b exemption. A throughput of 250 bbl/day and a surface area of 280 ft² are assumed for emission calculations.

Reference H - Solvents

- All solvents not used to thin surface coatings are included in this equipment category.
- Daily, quarterly and annual emission rates per Torch application.
- Hourly emissions based on daily value divided by an average 8-hour day. Compliance with hourly data to be based on daily actual usage divided by 8.
- Emissions based on usage of 3,009 gallons per year with no APCD-approved reclamation program

10.2 Emission Calculation Spreadsheets

(there are no additional emission calculation spreadsheets beyond Section 5)

10.3 Fee Calculations

Emission fees for Platform C are based on a cost reimbursement basis pursuant to APCD Rule 210.

All work performed with respect to implementing the requirements of the Part 70 Operating Permit program are assessed on a cost reimbursement basis (*Reference: APCD Rule 210.I.C*), pursuant to APCD Rule 1304.D.11.

10.4 IDS Database Emission Tables

Table 1
Permitted Potential to Emit (PPTE)

	NO _x	ROC	CO	SO _x	TSP	PM ₁₀
PTO 9112- Reeval issued March 22, 2000						
lb/day	1922.3	296.2	304.97	101.75	126.3	122.1
tons/year	25.64	38.04	19.99	3.12	2.92	2.84

Reference: Table 5.2 (p.41)

Table 2
Source Potential to Emit (FPTE)*

	NO _x	ROC	CO	SO _x	TSP	PM ₁₀
PTO 9110- Reeval issued March 22, 2000						
lb/day	1925.9	333.29	305.27	102.05	126.79	121.75
tons/year	25.71	44.68	20.02	3.13	2.93	2.84
PTO 9111- Reeval issued March 22, 2000						
lb/day	1922.1	377.3	303.58	101.61	126.26	122.03
tons/year	25.59	52.81	19.73	3.10	2.91	2.83
PTO 9112- Reeval issued March 22, 2000						
lb/day	1922.3	296.15	304.97	101.75	126.33	122.08
tons/year	25.64	38.04	19.99	3.12	2.92	2.84
PTO 9113- Reeval issued March 22, 2000						
lb/day	2051.3	229.82	314.70	112.31	142.46	138.21
tons/year	27.96	21.83	20.74	3.30	3.21	3.14
PTO 9114- Reeval issued March 22, 2000						
lbs/day	1929.5	380.01	305.13	102.04	126.78	121.88
tons/year	25.72	51.74	19.99	3.06	2.93	2.84
TOTAL Potential to Emit for Source on 3/22/2000						
lbs/day	9751.1	1616.57	1533.65	519.76	648.62	625.95
tons/year	130.62	209.10	100.47	15.71	14.90	14.49

References: Tables 5.2 in PTO's 9110 through 9114

Table 3

Federal Potential to Emit (PT 70 FPTE)*

	NO _x	ROC	CO	SO _x	TSP	PM ₁₀
PTO 9110- Reeval issued March 22, 2000						
lb/day						
Tons/year	28.7	17.3	20.7	3.3	3.1	3.0
PTO 9111- Reeval issued March 22, 2000						
lb/day						
tons/year	28.5	19.2	20.4	3.3	3.1	3.0
PTO 9112- Reeval issued March 22, 2000						
lb/day						
tons/year	40.1	22.5	23.1	4.1	4.0	3.7
PTO 9113- Reeval issued March 22, 2000						
lb/day						
tons/year	30.3	7.8	21.2	3.5	3.4	3.3
PTO 9114- Reeval issued March 22, 2000						
lbs/day						
tons/year	52.5	18.1	25.7	4.4	4.8	4.6
TOTAL Federal Potential to Emit for Source on 3/22/2000						
lbs/day						
tons/year	180.1	84.9	111.1	18.6	18.4	17.6

References: Tables 5.3 in PTOs 9110 through 9114

Table 4

Facility Net Emission Increase Since 1990 (FNEI-90)

	NO _x	ROC	CO	SO _x	TSP	PM ₁₀
PTO 9110- Reeval issued March 22, 2000						
lb/day		11.52				
tons/year		2.11				
PTO 9111- Reeval issued March 22, 2000						
lb/day		18.48				
tons/year		3.37				
PTO 9112- Reeval issued March 22, 2000						
lb/day		0.00				
tons/year		0.00				
PTO 9113- Reeval issued March 22, 2000						
lb/day		0.00				
tons/year		0.00				
PTO 9114- Reeval issued March 22, 2000						
lbs/day		13.76				
tons/year		2.51				
Total for Stationary Source:						
lbs/day		43.76				
tons/year		7.99				

References: Tables in Sections 5.7 of PTOs 9110 through 9114

Table 5
Facility Exempt Emissions (FXMT)*

	NO _x	ROC	CO	SO _x	TSP	PM ₁₀
PTO 9110- Reeval issued March 22, 2000						
tons/qtr	0.74	0.30	0.16	0.05	0.05	0.04
tons/year	2.95	0.51	0.64	0.20	0.21	0.18
PTO 9111- Reeval issued March 22, 2000						
tons/qtr	0.74	0.30	0.16	0.05	0.05	0.04
tons/year	2.95	0.51	0.64	0.20	0.21	0.18
PTO 9112- Reeval issued March 22, 2000						
tons/qtr	3.62	0.57	0.79	0.25	0.26	0.22
tons/year	14.45	1.60	3.14	0.98	1.03	0.88
PTO 9113- Reeval issued March 22, 2000						
tons/qtr	0.58	0.29	0.13	0.04	0.04	0.04
tons/year	2.33	0.46	0.50	0.16	0.17	0.15
PTO 9114- Reeval issued March 22, 2000						
tons/qtr	6.70	0.69	1.43	0.33	0.48	0.45
tons/year	26.77	2.06	5.72	1.29	1.91	1.80
Total for Stationary Source:						
lbs/day	12.38	2.15	2.67	0.72	0.88	0.79
tons/year	49.45	5.14	10.64	2.83	3.53	3.19

References: Sections 5.6 and 10.7 of PTOs 9110 through 9114

10.5 Part 70 Operating Permit Certified Compliance Plan

10.6 Equipment List

Except as described below, the permitted equipment for Platform C is the same as listed in PTO 9111 that was issued on September 4, 1994.

- All Tables: Exemption citations updated where applicable.

- Table S (*Maintenance Activities*): The Emission Control Efficiency was changed to zero percent to reflect that a Solvent Reclamation Plan was not submitted to the APCD.

10.7 Permit-exempt/Insignificant Activities List

1. One (1) Standby Power Generator, 21.8 hp, (BSFC = 7000 Btu/hp-hr), diesel-fired IC engine: Onan, 12DJC, No controls. (*Ref: 202.F.1.e*)
2. One (1) Standby fire water pump, 85 hp, (BSFC = 7,000 Btu/hp-hr), diesel-fired IC engine, Caterpillar, 3304, No controls (*Ref: 202.F.1.e*)
3. Two (2) Diesel Fuel Tanks, one each for the Pedestal Cranes, 3200 gallons capacity. (*Ref: 202.V.2*)
4. Maintenance Activity using the following coatings/thinner:
Carbothane D134 HS, Carbomastic 15, Carboline 801, and
the following thinner/solvent:
Methyl Ethyl Ketone (MEK) and Naphtha

(*Ref: 202.D.8*)

*All permit-exempt maintenance activities are, however, regulated under the following APCD Rules:
Rules 317, 321, 323, 324, 505 (a, b, and, d), and Regulation XIII.*